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ABSTRACT

A series of computer-assisted instruction (CAI) courses, called CARE (Computer Assisted Renewal Education), and a prototype mobile CAI van were developed to train teachers to identify handicpping conditions and to develop prescriptive and diagnostic teaching techniques for handicapped students. The project was designed to help with the placement of handicapped students in the classroom, as required by many state laws. The project monitored its accomplishments in four areas: inservice teacher education, curriculum maintenance, evaluation, and project administration. Appended to this final project report are the CARE service agreement, instructional development guide, and site brochure. (JY)

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CONTINUING EDUCATION (INSERVICE) FOR TEACHERS VIA COMPUTER-ASSISTED INSTRUCTION

A Final Report

Prepared By

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Submitted to

Division of Training Programs
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CONTINUING EDUCATION (INSERVICE) FOR TEACHERS VIA COMPUTER-ASSISTED INSTRUCTION

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There is a graving concern for the "right to education" for all children in this nation, with a particular emphasis upon the needs and rights of the handicapped child. The problem has been described as one of Decategorization, Delabeling and Desegregation (Mann, 1974). It is believed that the problem's resolution lies in placing the handicapped child in the regular classroom, thereby integrating the child with his peers and removing the social and personal stigmas endemic to being placed in "special courses" and "special rooms." A number of states have already, or are in the process of, passing legislation which will require that handicapped children be provided a regular public school placement or equitable alternatives at public expense. The placement of handicapped children in the regular classroom will require that the regular classroom teacher, particularly at the elementary level, be knowledgeable in identifying the presence and extent of a child's handicap and subsequently prescribing appropriate instruction for that child. However, many teachers do not possess such knowledge and skills. It is necessary, therefore, that these teachers be trained in those skills.

The Pennsylvania State University has developed a series of computer-assisted instruction courses for training regular educators to

teach handicapped children (the CARE series) and two prototype mobile CAI systems for delivering the instruction to inservice teachers in their home community. The objectives of this project are:

1. to provide quality, non-traditional teacher education to inservice teachers with computer mediated courses consistent with the thrust in mainstreaming mildly handicapped children;
2. provide curriculum update, revision, and refinement for all CARE courses;
3. to evaluate the effectiveness of the CARE 1 and CARE 2/3 curricula, and
4. to provide and improve project administration.

OBJECTIVES AND ACCOMPLISHMENTS

Objective 1: Inservice Teacher Education

To provide quality, non-traditional teacher education to inservice teachers with computer mediated courses consistent with the nationwide thrust in mainstreaming mildly handicapped children.

Accomplishments to date. The productivity of the project (measured by numbers of teachers trained in identifying handicapping conditions and prescriptive and diagnostic teaching techniques) is shown in Table 1. CARE 1, Early Identification of Handicapped Children, was first available for use in October of 1970 and has been used continuously since then providing training to 3,058 preservice and inservice teachers. CARE 2 and 3, Prescriptive and Diagnostic Teaching Procedures for Teachers of Preschool/Primary Grade Children were first available for continuous use in 1974 and have provided training to 631 teachers since that date. CARE 4, Education of the Visually Handicapped has provided training to 181 teachers since it first became available in 1972. In all, the four CARE courses have provided an estimated 115,000 tutorial hours of instruction to a total of 3,870 teachers in Pennsylvania and across the nation. Registration is currently in progress at Edmonds, Washington, sponsored by Western Washington State College and at Oakland, California, sponsored by the Oakland Unified School District.

Negotiations are currently underway to provide CARE instruction in King County, Washington, and five consecutive sites in Ohio.

TABLE 1

Summary by Site, Course, and Year of CARE Enrollments via Mobile CAI.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Sites	Dates	Course				Site Total	
		CARE 1	CARE 2	CARE 3	CARE 4	N	SCH
Clearfield, Pennsylvania	10/70 – 12/70	106	–	–	–	106	318
1970 Total		**106**	–	–	–	**106**	**318**
Ridgway, Pennsylvania	1/71 – 2/71	137	–	–	–	137	411
Smethport, Pennsylvania	3/71 – 4/71	119	–	–	–	119	357
Athens, Pennsylvania	4/71 – 6/71	144	–	–	–	144	432
Williamsport, Pennsylvania	6/71 – 8/71	170	–	–	–	170	510
Hollidaysburg, Pennsylvania	9/71 – 10/71	147	–	–	–	147	441
Bedford, Pennsylvania	10/71 – 12/71	85	–	–	–	85	255
1971 Total		**802**	–	–	–	**802**	**2,406**
Somerset, Pennsylvania	1/72 – 2/72	140	–	–	–	140	420
Richland, Pennsylvania	2/72 – 5/72	203	–	–	–	203	609
Ebensburg, Pennsylvania	5/72 – 7/72	117	–	–	–	117	351
Langhorne, Pennsylvania	7/72 – 8/72	187	–	–	9	196	570
Ford City, Pennsylvania	9/72 – 10/72	117	–	–	8	125	359
Houston, Texas (1)	11/72 – 12/72	126	–	–	–	126	378
1972 Total		**890**	–	–	**17**	**907**	**2,687**

TABLE 1 – Continued

Sites	Dates	Course				Site Total	
		CARE 1	CARE 2	CARE 3	CARE 4	N	SCH
Houston, Texas (2)	1/73 – 2/73	147	–	–	–	147	441
Bloomington, Indiana	3/73 – 4/73	99	20	–	–	119	357
Atlanta, Georgia	4/73 – 6/73	78	–	–	8	86	242
Edwardsville, Illinois	7/73 – 8/73	111	24	–	–	135	405
Elwyn, Pennsylvania (1)	7/73 – 8/73	61	–	–	16	77	199
DeKalb, Illinois	9/73 – 10/73	161	–	–	–	161	483
Elwyn, Pennsylvania (2)	9/73 – 11/73	12	–	–	4	16	40
Carbondale, Illinois	10/73 – 12/73	89	13	–	–	102	306
1973 Total		**758**	**57**	–	**28**	**843**	**2,473**
Monroeville, Pennsylvania	12/73 – 2/74	25	11	–	5	41	113
Springfield, Illinois	3/74 – 4/74	34	68	–	14	116	320
Wingate, Pennsylvania	3/74 – 4/74	62	58	–	12	132	372
Johnstown, Pennsylvania	4/74 – 6/74	67	92	–	14	173	491
Park Forest South, Illinois	5/74 – 8/74	149	49	30	31	259	715
Poughkeepsie, New York	7/74 – 8/74	19	19	27	9	74	204
Grand Rapids, Michigan	9/74 – 12/74	9	3	12	1	25	73
Wormleysburg, Pennsylvania	9/74 – 12/74	30	19	23	7	79	223
1974 Total		**395**	**319**	**92**	**93**	**899**	**2,511**

TABLE 1 – Continued:

Sites	Dates	Course				Site Total	
		CARE 1	CARE 2	CARE 3	CARE 4	N	SCH
Minneapolis, Minnesota	1/75 – 3/75	14	7	14	7	42	112
Athens, Ohio	2/75 – 3/75	14	13	11	15	53	129
Pomeroy, Ohio	3/75 – 5/75	30	7	63	6	106	306
Tacoma, Washington	3/75 – 5/75	49	9	39	15	112	306
1975 Total		**107**	**36**	**129**	**43**	**313**	**853**
Grand Total		**3,058**	**412**	**219**	**181**	**3,870**	**11,248**

Evaluation of accomplishments. Table 1 shows quite clearly that over the years the annual throughput of the CARE program has increased from 106 students to a total of 3,870 for 1975 with registrations not yet complete for this year. The increase is caused by several factors: increased number of student stations available during this time period -- originally 16 stations were available, and 16 additional stations were added in a second mobile laboratory in July of 1973; increased course offerings; and refined management procedures.

The CARE program has also served students through a resident instruction installation on the Penn State campus. The installation, consisting of 32 terminals, has enabled CARE to reach a greater audience. In the past three years the installation has served 5,565 students (this is reflected in Table 2), thus CARE is reaching for more students than only those fortunate enough to have a van in their vicinity.

We have found that a minimum of 16 weeks is required to properly prepare for the administrative, physical, and instructional requirements for making optimum use of a mobile laboratory. Implementing an instructional site with less than 16 weeks lead time results in decreased efficiency of the program because of potential delays in getting necessary electrical power, procedural delays in arranging for collegiate credit for the course offerings at other universities, and delays in getting students started with instructional materials. BEH and Penn State both were caught in this predicament in regard to the 1974-75 grant. BEH could not advise Penn State of any action on the grant request prior to official notification by the U.S.O.E. Contracts Office, and Penn State could not negotiate for instructional

TABLE 2

Number of Students and Student Credit Hours Generated
Resident Instruction Summary 1972–1975

The Pennsylvania State University
Computer Assisted Instruction Laboratory

	Summer		Fall		Winter		Spring		Total	
	N	SCH	N	SCH	N	SCH	N	SCH	N	SCH
1972–73										
EEC 400 (3)	–	–	192	576	255	765	280	840	727	2,181
EEC 460 (1)	–	–	–	–	–	–	4	4	4	4
Math Ed 420 (2)	–	–	84	168	90	180	143	286	317	634
72-73 Sub Total			**276**	**744**	**345**	**945**	**427**	**1,130**	**1,048**	**2,819**
1973–74										
EEC 400 (3)	157	471	296	888	328	984	286	858	1,067	3,201
EEC 401 (3)	–	–	–	–	108	324	122	366	230	690
EEC 460 (1)	9	9	13	13	20	20	37	37	79	79
Math Ed 420 (2)	9	18	137	274	173	346	200	400	519	1,038
73-74 Sub Total	**175**	**498**	**446**	**1,175**	**629**	**1,674**	**645**	**1,661**	**1,895**	**5,008**
1974–75										
EEC 400 (3)	156	468	304	912	291	873	306	918	1,057	3,171
EEC 401 (3)	63	189	95	285	107	321	103	309	368	1,104
EEC 460 (1)	31	31	29	29	38	38	38	38	136	136
Math Ed 420 (2)	9	18	194	388	201	402	191	382	595	1,190
Lang Ed 441 (1)	–	–	134	134	168	168	117	117	419	419
Lang Ed 498 (1)	16	16	8	8	3	3	2	2	29	29
Math 198 (.22)*	–	–	18	4	–	–	–	–	18	4
74-75 Sub Total	**275**	**722**	**782**	**1,760**	**808**	**1,805**	**757**	**1,766**	**2,622**	**6,053**
							Grand Total		**5,565**	**13,880**

* Drill and practice in math skills for students in Developmental Year Program.

June 10, 1975

sites after the end of the previous grant until official word was received on the 1974-75 grant.

For the current year (1974-75) the grant was requested for a June 1, 1974 start date, official notification of the grant award was received June 29, 1974. The consequence of such a short lead time for planning is reflected most sharply in reduced student enrollments. In an effort to avoid such consequences, we have, therefore, proceeded with tentative commitments to local sponsoring agencies desiring to provide the CARE instruction to their local teachers well beyond May 31, 1975, which is the termination of the current grant. This is an attempt to produce maximum impact from the resources provided by the grant and relies on the good faith of the local sponsoring agency and Penn State in planning for the use of resources which have not been yet provided. If we do not adopt this procedure and we continue to operate with annual grants, we would lose effectiveness during the first six months of every operational year.

Specific sites where inservice training will be provided have been tentatively selected and are shown in Table 3 and Figure 1. Flexibility for moving the vans and for adjusting the length of stay to the size of the target population must be maintained to achieve maximum impact in the areas being served. The staff at Penn State is continually open to suggestions and recommendations from BEH, NCEMMH and NASDSE for instructional sites.

Local sponsoring agencies will be required to make a commitment to sponsor CARE as is outlined in the Service Agreement (Appendix A). The Service Agreement specifies a minimum fee which the local sponsoring agency will pay to Penn State for providing the program in their

TABLE 3

TENTATIVE MOBILE CAI SCHEDULE
1975

Sponsor	Chief Contact Person	Dates	Location	Duration of Site
Mobile Van I (Hacker):				
University of Minn. Minneapolis, Mn.	Frank Wood, Chairman Spec. Educa. Dept.	5/22/75-7/10/75	Rochester, Minn.	(7 wks)
Oakland Unified School Oakland, Calif.	Al Trudyman Spec. Educa. Dept.	7/19/75-9/12/75	Oakland, Calif.	(8 wks)
Northeastern Educa. Inter. Unit #19	Francis J. Chopko Supervisor- Speech and Hearing	9/22/75-11/7/75	Scranton, Penna.	(7 wks)
Mobile Van II (Emery):				
Western Washington State College, Bellingham Washington	Arnold Gallegos Associate Dean	1. 3/10/75-5/2/75	Tacoma, Washington	(8 wks)
		2. 5/7/75-7/2/75	Vancouver, "	(8 wks)
		3. 7/7/75-8/29/75	Lynnwood, "	(8 wks)
		4. 9/5/75-10/31/75	King County, " (I)	(8 wks)
		5. 11/3/75-12/31/75	King County, " (II)	(8 wks)

Figure 1. Previous and Planned Instructional Sites for the Mobile CAI CARE Programs.

Key

x = Previous Sites

o = Future Sites

(June 30, 1975)

local area. This fee is the equivalent of $10 per student unit* for a minimum of 600 units per eight week site (the equivalent of 200 teachers each taking 1 three-unit course). This income is applied to the budget for Objective 1 and reduces the total amount provided by BEH for operating this objective. The local sponsoring agency may in turn recover the amount of that service fee by charging students $10 per unit. If they recruit a minimum of 200 students, they will break even on the Service Agreement. If they recruit less than 200 students they will be required to meet the terms of the Service Agreement from their own resources. If they recruit more than 200 students, they will not owe any more to Penn State but may use the additional income to reduce their own out-of-pocket costs for electrical service, staff costs for recruiting, and other related expenses. The purpose of this arrangement is to obtain a higher degree of commitment from the local sponsoring agency to recruit students for the program and thus enhance the impact of the BEH effort. However, this arrangement, while probably securing a deeper commitment to student recruitment from those sponsoring agencies which elect to host the CARE program, tends to discourage many interested and potential sponsors. These potential sponsors recognize the benefits which the CARE program holds for their teachers, but, because of the burden placed upon them by the fixed minimum fee of $6,000, cannot afford to undertake the financial risk of sponsoring the program. The Navajo Community College, the

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*One unit is the equivalent of one semester hour of collegiate credit.

University of Tennessee, and the North East Independent School District of San Antonio are three examples. Their letters which regretfully express their inability to finance the CARE program are in Appendix C.

Another consequence of the fixed fee is that some sponsors will agree to support the CARE program in their area, but not until it is completely or substantially financially underwritten. Thus, as was the case at the CARE site in Rochester, Minnesota, efforts toward student recruitment were not begun until the program was suitably underwritten. The consequence was a short and shallow information dissemination campaign quite close to registration day, reducing enrollment to one which contributed to a low number of students. Potential students must be informed and prepared well in advance of registration day.

The main criterion for accomplishment for this objective for 1975-76 will be the productivity of the program measured by the number of teachers trained in the CARE courses available. The substantive questions of the impact of these courses of study on the teachers' behaviors is dealt with under Objective 3, Evaluation.

Many, if not most, of the factors related to the productivity of the project are administrative in nature and are dealt with specifically in Objective 4, Project Administration.

The goal for 1975-76 is a 5% increase in number of students served by the program over the 1970-75 accomplishments, which averaged 117 students per site. This means an average of 123 course completions every 8 weeks in each mobile laboratory. An additional 10% increase could be achieved when additional course materials (CARE 5, Education of the Hearing Handicapped, and CARE 6, Education of the Severely Mentally Retarded) are available.

Objective 2: Curriculum Maintenance

Provide curriculum updating, revision, and refinement for all CARE courses.

Accomplishments to date. Curriculum maintenance is a major ingredient in providing top quality instruction to the students. The objective is not focused on developing additional chapters, additional topics of instruction, or changing the major thrust of the curriculum. Rather it is focused on refining and correcting the existing content material and programming which accompanies it.

A major purpose of this objective is to keep the curriculum current. Thus, updating and minor changes based on continuing evaluation are essential. However, periodic updating to accommodate changing OE priorities and definitions and other national trends is relatively inexpensive compared with the initial developmental effort.

As each student progresses through the courses, all of his responses to questions can be recorded by the computer system for later analysis and curriculum revision. For example, CARE 1 has been revised on the basis of over 500,000 student responses. Each student is also encouraged to make suggestions for course improvement. When a student begins a course, he is familiarized with a comment routine which is a part of every chapter of every course. Each student is encouraged to comment throughout the course when he is unclear about a point being made, when he wants to take issue with the way the point is being made, to request additional information, or to argue

that a response that was called incorrect should also be considered correct. The comments are processed weekly and forwarded to the instructional coordinator in charge of the course. Each comment is reviewed and the course examined to determine the validity of the comment. In this way the course is continually monitored by the students and revisions are made to the course based on the students' changing needs and viewpoints. Suggestions and comments from colleagues in the field of special education will also be systematically collected, collated, and used for revision of the curriculum. Updating of off-line (textbooks, handbooks, tests, etc.) and on-line materials (image reels and audio tapes) are required to reflect curriculum content changes.

No significant content changes or revisions have been made in CARE 1 and 4 this year. Curriculum changes in CARE 2/3 have been rather extensive, based on data collected from students during December 1973 through June 1974. The course material on retrieval systems proved very popular with some students and unpopular with others indicating the need for revisions. The first chapter of this component, for example, is mandatory and provides an overview of several of the retrieval systems in the area of special education. However, the overview required changes because of the realignment of the IMC/RMC network and the emergence of the ALRC network. The ERIC retrieval system was also added to this chapter plus an overview of the other retrieval systems--Computer Based Resource Units (CBRU), Prescriptive Materials Retrieval System (PMRS), and the Fountain Valley Teacher

Support System (FVTSS). Thus, inservice teachers now have the option of choosing to learn the systems available in their school and skipping the others.

Another example of the kind of curriculum changes required to keep the curriculum current might be helpful. CARE 2 and 3 each teach inservice teachers how to use the Fountain Valley Teacher Support System in reading as a management tool for their classrooms. The course requires that the student have a copy of the Fountain Valley Teachers' manual available to him as he is receiving instruction. We recently received word that the particular teachers' manual to which our on-line curriculum has been geared will be discontinued and a new one will be published in its place. Since the new version of the manual will be available to teachers commercially, and the old one around which the course was written will not, it is imperative that the course be updated and revised to provide instruction on the current version of the Fountain Valley Teacher Support System in reading.

Changes in these chapters and the decisions to make certain ones optional has required changes in the final examination and quizzes which accompany the course. The quizzes and examinations have also been revised and updated to reflect student performance during the fall, winter and spring of 1973-74.

Evaluation of accomplishments. The effect of all of these changes has been an improvement in student attitude and reaction to the courses

and a growing popularity for the courses. This popularity can be particularly identified on the University Park campus where the enrollments have continued to grow except when limits have been put on the courses because of the maximum capacity of the available student stations.

Objective 3: Evaluation

To evaluate the effectiveness of the CARE 1 and CARE 2/3 curricula.

Accomplishments to Date

The major purpose of the CARE 1 program is to train teachers in educationally relevant diagnostic and clinical assessment skills. The program has six objectives based on identification and referral for handicapping conditions in children. Objectives have been sequenced as a "Decision-Process" model which both describes the teacher's function in the referral process and outlines the rationale of the CARE 1 course (Cartwright and Mitzel, 1971).

Several types of evaluations have been conducted on the CARE 1 program and are described in detail in Cartwright and Mitzel (1971), Cartwright (1971), Cartwright, Cartwright and Robine (1972) and Sedlak, Borman and Cartwright (1972). An extensive formative evaluation was undertaken before the formal introduction of CARE 1 as a course. Pilot groups of students took the course and were provided with cards on which to record reactions or comments. The program directors then consulted with the appropriate course authors, or the programmers, to effect revisions as deemed necessary. After revision, two advanced graduate students in special education reviewed the course and a similar evaluation and revision procedure was adopted. Those students also completed a detailed evaluation of course effectiveness and the extent to which they judged that the objectives were being achieved.

When the program went into productive use via a mobile delivery system a continuous monitoring of student reaction to the courses was maintained. Sedlak, Borman and Cartwright (1972) report that evaluation and revisions made from data at one site, were perceived by students at later sites as being improvements. The data reported on both technical and conceptual features of the course.

An extensive summative evaluation was reported by Cartwright, Cartwright and Robine (1972). Groups of students in an introductory course in education of exceptional children were randomly assigned to a conventional instruction condition or to a computer-assisted instruction condition, using the CARE 1 program. The results show that final examination achievement scores were significantly higher for the CAI group and that these results were achieved with a considerable reduction in the mean number of course hours per student.

The formative and summative findings have been replicated by Edwards and Judd (1972) at the University of Texas using advanced teachers. In all groups the response to CARE 1 was judged as favorable. The judgments were made on both the content of the course and CAI as the instructional mode.

A follow-up survey of teachers who had completed the CARE 1 program, by Vitello, Sedlak and Peck (1972), showed that the course might be an important influence in the teacher's behavior. A majority of the respondents (i.e. 84%) reported that CARE 1 positively influenced their classroom behavior. They reported greater use of the CARE 1 Decision Model, and an increase in referral of children with educational problems. Although the survey was conducted on a small sample, i.e. 38 teachers, a high return rate was obtained.

The CARE 2 and CARE 3 programs were developed to follow the CARE 1 program. Their purpose is to instruct pre-school and elementary school teachers in appropriate diagnostic teaching techniques and classroom procedures for children with mildly handicapping conditions. In the developmental stage of the programs a similar evaluation and revision procedure (similar to the procedures used in CARE 1) was employed. In addition, Cartwright and Cartwright (1974) reported field tests at Indiana University and Southern Illinois University which have resulted in improvements to the course. The CARE 2/3 courses were first offered as regular non-experimental courses in 1974.

Evaluation of Accomplishments

The evaluation of the effectiveness of CARE 1 and CARE 2/3 during the 1974-75 period is being conducted with the assistance of The Center for Cooperative Research with Schools (CReWS) of The Pennsylvania State University. CReWS is a unit of the College of Education which specializes in educational research and evaluation. The initial activity of CReWS was the preparation of a report on the evaluation of the effectiveness of CAI programs and the use of simulation as a mechanism for evaluation of CAI program effectiveness. The primary findings of the literature survey were:

1. The short term effectiveness of CAI courses is well documented. When compared with traditional courses CAI courses for college level students result in higher post course achievement levels, usually with a considerable savings in student instructional time.

2. Although computer based simulation is a relatively recent innovation in teacher education holding some promise, little has been attempted to date in the use of simulations for judging the effectiveness of CAI programs.
3. More work is needed in order to substantiate the long term effectiveness of CAI programs.

Two techniques are being used to evaluate CARE 1. The first technique is the use of a modified version of CARE-S, a simulation program developed at the University of Texas at Austin. CARE-S provides the teacher with a simulated classroom in which the teacher is expected to use the decision process taught by CARE 1 to identify children with handicaps. Work is currently underway to develop an evaluation instrument and procedures for evaluating the effectiveness of CARE 1 through CARE-S. The CARE-S program and the CARE-S evaluation instrument will be validated by faculty and graduate students from the Department of Special Education at Penn State. Both test-retest and internal consistency reliability of the instrument will be estimated prior to the field testing with on-line students.

Three randomly selected groups of 30 students each taking CARE 1 at University Park will be used to field test CARE-S and the CARE-S evaluation instrument. The design is as follows:

Group	Pre-CARE 1		Post-CARE 1
R 1	CARE-S/inst.	CARE 1	
R 2		CARE 1	CARE-S/inst.
R 3	CARE-S/inst.	CARE 1	CARE-S/inst.

The comparison of group R 1 and group R 2 will be used to determine the effectiveness of CARE 1 in improving performance in CARE 1 objectives as measured by the CARE-S evaluation instrument. The comparison of group R 2 with group R 3 will be used to determine the effectiveness of CARE-S as a pre-CARE 1 introductory sensitizing technique to improve learning of CARE 1 material and subsequent ability to use CARE 1 information as measured by the CARE-S evaluation instrument. Effects of pre-testing (CARE-S/inst. No CARE 1 CARE-S/inst.) will have been determined during the reliability estimation. If a significant pretesting effect is observed in the reliability estimation, group R 3 will be dropped and only groups 1 and 2 will be needed for the determination of short term CARE 1 effects.

The second technique to be used to evaluate the effectiveness of CARE 1 will be the use of Attitude Inventory-1 which will assess student awareness of and importance attached to various concepts relating to the identification and referral of handicapped children. This instrument will be validated through content analysis and review by the faculty and graduate students in the Department of Special Education at Penn State and also by other nationally recognized experts in special education. Attitude Inventory-1 will present various concepts relating to the identification and referral of handicapped children and request respondents to indicate their awareness of indicators of various handicapping conditions and various referral procedures. It will also solicit a ranking of the importance of identification and referral of various types of handicapped children.

As of this date Attitude Inventory-1 has been administered, on a field test basis, to 400 college students, followed by the execution of an item analysis. Modification of Attitude Inventory-1 is currently underway. Upon completion of modification and further testing, the inventory will be submitted to the Special Education faculty for final review. The inventory will then be put into service as an evaluation instrument, which is projected to occur sometime during the coming academic year.

CARE-S has also been subjected to an item analysis, and the results are currently being examined and weighed in terms of the application of CARE-S to the evaluation effort. The present focus is also upon the interpretation and meaning of data generated by CARE-S in respect to its employment in the evaluation process.

Concurrent and predictive validity between the performance of CARE-S and the Attitude Inventory-1 will be determined at the end of the field testing of both instruments.

During 1974-75 work will be initiated on the identification of observable teacher behaviors relating to the CARE 2/3 curriculum. These will then be used to expand the CARE-S simulation package to cover CARE 2/3 curriculum concepts. Work will be initiated on an Attitude Inventory 2/3 which is designed to measure awareness and importance attached to the concepts of adapting classroom instructional programs to individual needs of handicapped children.

Objective 4: Project Administration

To provide and improve project adminstration.

Accomplishments to date. Inasmuch as the major costs of the project (salaries and equipment lease) continue even during times when the mobile laboratories are in transit or while students are being recruited and are not yet actively receiving instruction, one measure of efficiency of project administration is the number of students served by the program. The number of students served since the first full year of operation in 1971 through the current calendar year of operation, (although registration for two 8-week sites is currently underway and the enrollment figures for those sites are therefore not yet available) is 3,764.

During the last several months that the mobile program has been in operation, we have been working with and testing different relationships between Penn State and various types of sponsoring agencies. We have worked with single school districts, intermediate units, private residential institutions for mentally handicapped, the University alone and the University in conjunction with a local school district. These arrangements are summarized in Table 4 along with evaluative judgments on several different criteria. We have concluded from this experience that the CARE programs will have their greatest impact (largest number of teachers trained) at the least cost to the BEH grant by working with intermediate units in conjunction with an institution of higher education.

Table 4

Summary of Sponsoring Relationships

for Providing CARE to Inservice Teachers

Sponsor	Evaluation Criteria: Recruiting Effectiveness	Management Effectiveness	Cost to BEH Grant
University	low	high	high
University and local school district	high	medium	low
Private Residential school for Mentally Handicapped	low	low	medium
Intermediate Unit	high	high	low
Other college or university	high	medium	low

To further enhance the management techniques employed with the mobile program, we are preparing an instructional site development guide to help coordinate the efforts of the various staff members at Penn State who have responsibility for the project, and the efforts of the local sponsoring agency in preparing for the mobile program. The guide is in a formative stage with pieces of it having been used by the staff in developing some of the present and future sites for the project. A draft copy of this guide is included in Appendix B.

Evaluation of Site Development Strategy

We are becoming ever more aware of the necessity for a closer, more intimate support relationship between Penn State and the sponsoring agency. We have, therefore, attempted to:

1. have more person-to-person situations during which the facets of the program are defined and clarified;
2. be more responsive to ongoing needs and problems of the sponsoring agency through weekly contacts via the telephone; and
3. supplying the sponsor with a variety of student recruitment materials which are designed, developed and distributed through Penn State.

The person-to-person situations involve visits to the site to meet with the sponsors. During these meetings the CARE program's content, processes and goals are explained. The respective contributions and responsibilities of Penn State and the sponsoring agency are also discussed. In addition, the necessity of the sponsor conducting a

thorough and energetic student recruitment campaign is stressed. This includes an explanation of recruiting strategies and a presentation of the variety of student recruitment materials which Penn State supplies to the sponsor. Such materials include brochures, posters, and pre-registration forms. A set of these materials are displayed in Appendix D.

The over-all efforts in the site development process, then, are towards greater consultative support for the sponsor, more frequent and responsive monitoring of the sponsor's development and recruitment efforts, and supplying a greater variety of recruitment strategies and materials which are designed and developed specifically to improve student recruitment.

References

Cartwright, G. P., and Cartwright, C. A., Training Early Childhood Education: Computer Assisted Courses in Diagnostic Teaching - Final Report R-61, The Computer Assisted Instruction Laboratory, Pennsylvania State University, University Park, Pa., 1974.

Cartwright, C. A., Cartwright, G. P., and Robine, G. G., CAI Course in the Early Identification of Handicapped Children, Exceptional Children, 1972, 38, 453-459.

Cartwright, G. P. and Mitzel, H. E., Computer Assisted Remedial Education: Early Identification of Handicapped Children, Final Report R44, The Computer Assisted Instruction Laboratory, Pennsylvania State University, University Park, Pa., 1971.

Cartwright, C. A., A Computer Assisted Instruction Course in the Early Identification of Handicapped Children. Paper presented at the Annual Convention of the Northeastern Educational Research Association, Grossinger, New York, November 1971.

Edwards, A., and Judd, W. A., Evaluation of CARE 1 for Projected Use at the University of Texas, Technical Report No. 12, Computer Assisted Instruction Laboratory, Texas University, Austin, Texas, 1972.

Mann, P. H., Mainstream Special Education. Reston, Virginia: Council for Exceptional Children, 1974.

Sedlak, R. A., Borman, K. J., and Cartwright, G. P., Using student attitudes as index for gauging improvement following a formative evaluation, College Student Journal, 1972, 6, 3-9.

Vitello, S. J., Sedlak, R., Peck, A., Follow-up evaluation of a Computer Assisted Instruction course on The Early Identification of Handicapped Children. ED 077868, 1972, Available from EDRS Document Service, Bethesda, Maryland.

APPENDIX A

Service Agreement

AGREEMENT BETWEEN

AND

THE PENNSYLVANIA STATE UNIVERSITY

THIS AGREEMENT entered into as of _____

by and between _____

_____
(city) (state)

(hereinafter referred to as "local sponsoring agency") and The Pennsylvania State University, University Park, Pennsylvania (hereinafter referred to as "Penn State").

WHEREAS, Penn State has developed a series of computer-assisted courses of instruction for inservice teacher education through grants provided by the Office of Education, U. S. Department of Health, Education and Welfare, and other public agencies, and has also acquired mobile CAI laboratories for implementing these courses in various parts of the United States; and

WHEREAS, Penn State received Grant No. OEG-0-74-9085 from the Bureau of Education for the Handicapped, U. S. Office of Education to use aforementioned courses and mobile laboratories to provide training to educators throughout the United States; and

WHEREAS, the local sponsoring agency has determined a need for such training and has agreed to provide the necessary resources; and

WHEREAS, Penn State, based upon the foregoing, agrees to provide the aforementioned training.

NOW, THEREFORE, in consideration of the foregoing and of the mutual covenants and agreements hereinafter set forth, the parties hereto, legally intending to be bound, hereby do covenant and agree as follows:

ARTICLE I. – Scope of Agreement

A. Penn State will provide:

1. a self-contained Mobile CAI Laboratory complete with student stations and locate same on a site to be provided by the local sponsoring agency;
2. on-site technical staff who will be responsible for the management and operation of the mobile laboratory;
3. on-site training for local proctors and a computer system operator which are to be provided by the local sponsoring agency;
4. curriculum updating, revisions, and maintenance thereof;
5. student recruitment materials;
6. continuous monitoring of student progress to insure that all students are provided an adequate amount of time to complete the courses for which they enroll;
7. telephone communication service between the local community, the Mobile CAI Laboratory and University Park Campus;
8. consignment of University developed off-line study materials to the local sponsoring agency, bookstore, or other local distributor;
9. list of students, certification of course completion, and recommended grade marks to credit-granting institutions;
10. a slide/tape presentation student recruitment kit;
11. list of sources for commercially available study materials required for on-line instruction;
12. orientation of local coordinator in publicity, audience development, and student recruitment.

B. The local sponsoring agency will provide:

1. a paved area 40 feet by 20 feet for locating the Mobile CAI Laboratory, plus additional parking space for 18 to 20 cars for students and staff;
2. electrical power and installation thereof (208 volts, 3 phase, 200 amps per phase) to be ready for connection upon arrival of the CAI Laboratory;
3. telephone hookup service extended to site of the Mobile CAI Laboratory;
4. convenient and adequate restroom facilities;
5. security services as reasonably required by Penn State;
6. snow removal for student safety as needed;
7. proctor for students approximately 80 hours per week as needed;
8. computer operator approximately 40 hours per week as needed;
9. released time for teachers to receive CAI instruction during school hours where feasible;
10. coordinator for publicity, audience development, and student recruitment who will be trained at University Park (transportation and per diem provided by local sponsoring agency);
11. distribution of student recruitment materials;
12. administrative service necessary for preregistration and enrollment of students, etc.;
13. distribution of commercially available off-line study materials to students as required by course enrollment;
14. collection of all assessed fees;
15. the local sponsoring agency shall accept and be responsible for all study materials consigned to it by Penn State and in this connection shall handle all sales on a cash basis and collect for all sales.

ARTICLE II. – Period of Use

A. A Mobile CAI Laboratory will be placed at the designated instructional site on or about _____ and will be available for instruction within forty-eight hours thereafter.

B. The Mobile CAI Laboratory will remain on site until _____ or until all students have had adequate opportunity to complete the course instruction for which they have enrolled, whichever first occurs.

C. Additional weeks of instructional services may be provided by mutual agreement of the parties.

ARTICLE III. – Termination

This agreement may be terminated by mutual agreement no later than _____ which is approximately 60 days prior to estimated time of arrival of the Mobile CAI Laboratory at the instructional site.

ARTICLE IV. – Changes

This agreement may be changed at any time by mutual agreement of the parties. Such changes (if any) will be by written amendment hereto and executed by authorized officials.

ARTICLE V. – Payments to Penn State

A. 1. The local sponsoring agency will pay Penn State a predetermined fixed sum of $ _____.

2. The fixed payment specified by the preceding paragraph provides for a maximum of _____ (no.) unit completions within the specified instructional period. (semester or quarter)

B. The local sponsoring agency shall either make payment to Penn State for all of the consigned study materials (see Article I. B.15.) that are sold, used, or distributed, in accordance with the attached book list schedule, or shall return to Penn State in new condition the residual study materials (unsold, unused, or undistributed).

C. 1. Payment of the amount of $ _____ provided for in V. A.1. above shall be made upon receipt of invoice from The Pennsylvania State University as follows:

a. 50% of the amount of $ _____ at the end of the first week of instruction;

b. the remaining 50% or $ _____ at the end of the first four weeks of instruction.

2. Payments relating to all consigned study materials sold, used or distributed referred to in V. B. above shall be made by the end of the fourth week of instruction. Each payment shall be accompanied by an itemized listing.

3. All payments under V. C. 1. and 2. above shall be by check or money order payable to The Pennsylvania State University and mailed to:

Bursar
112 Shields Building
University Park, Pa. 16802

ARTICLE VI. – Collection of Fees and Charges by Local Sponsoring Agency

A. The local sponsoring agency may at its option charge students a registration fee as indicated in the table below:

	Semester		Quarter	
Course	Unit	Fee	Unit	Fee
CARE 1	3	$30	4	$30
CARE 2	3	$30	4	$30
CARE 3	3	$30	4	$30
CARE 4	1	$10	2	$15

B. 1. The local sponsoring agency may also charge the student a modest "recording fee" to pay the local college or university designated by the student for the cost of recording credits at that college or university.

2. Inasmuch as the U. S. Office of Education is supporting the major costs of instruction, the full tuition fee of the aforementioned college or university at which the credits are recorded may not be charged.

ARTICLE VII. – Reports

A. No reports are required under this agreement.

B. The local sponsoring agency, if it wishes, may submit suggestions for improvement, in writing, to Penn State based upon its experience under this agreement.

ARTICLE VIII. – Liability

Neither party to this agreement shall be held liable by the other party for personal injury or property damage.

ARTICLE IX. – Publications

Penn State and local sponsoring agency are free to publish information resulting from this agreement.

4

ARTICLE X. Publicity

No advertising or publicity matter having or containing any reference to Penn State or in which the name of Penn State is mentioned shall be made use of by local sponsoring agency until written approval has first been obtained from Penn State.

IN WITNESS THEREOF, the parties have executed this agreement.

_____
(Local Sponsoring Agency)

By: _____

Title: _____

The Pennsylvania State University

By: _____

Title: Fiscal Officer

APPENDIX B

Instructional Development Guide

THE PENN STATE MOBILE SPECIAL EDUCATION
IN-SERVICE TEACHER EDUCATION PROGRAM

Forward

The materials contained in this planning guide are to assist local sponsoring agencies in preparing for the use of the Mobile CAI Laboratory in up-grading the skills of regular classroom teachers to deal more effectively with handicapped children. The purpose is to layout logically the tasks which need to be done and provide as much support as is possible to accomplish those tasks so that the local sponsoring agency can accomplish its goals as efficiently as possible.

The material falls into two categories: 1) a time line of events or activities to be accomplished, and 2) the necessary background and supporting information and material to accomplish those events. In short, the guide is a collection of materials for accomplishing certain tasks and a schedule for completing them. The reader will note a certain lack of continuity of discourse which might be found in a normal book or manual. This lack is part of the design so that the local sponsoring agencies can find and use the material in the handbook with as little effort as possible. Where certain standard materials have been found to be effective, copies of them are included. These may be removed from the manual and used exactly as they appear with the addition of specific local information which might be needed. For example, the Press Release announcing the use of the programs in the local area can be used as it is with the addition of the names of the local sponsoring agencies, the dates of operation for the program, and the identification of local individuals to contact for more information.

Instructional Site Planning Guide

Schedule of Events

Activities	Starting Dates WEEK:
Establish Service Agreement ----------	16
Prepare physical site Select Site Evaluate site	
Compile local details for: student recruiting Preregistration Registration	-15
Start local recruitment of students --------- Take tabloids, etc., to potential students Post notices, posters, billboards Begin preregistration by mail	13
Finish preregistration ---------- Collect all preregistration forms	10
Order student materials----------	9
Contact utilities companies---------- Arrange installation dates	8
Screen personnel to be hired locally---------	5
Take press releases to local media----------	4
Register students---------- Hand out necessary forms Collect money for materials	2
Prepare for van arrival and start of program- Compile local master data sheet Notify traffic authorities of van arrival Assure major electrical work is complete Confirm telephone installation	1
Place van----------	TARGET DATE
Select local personnel Hire proctors and operators Train personnel	
Begin instruction	

___ Establish service agreement

___ Select physical site

___ Verify Electrical Requirements with Power Company or School Electrician

Accompanying the enclosed Service Agreement are two items:
.Estimated Local Costs sheet
.Typical Operational Schedule
These are included to expand on the terms of the Agreement.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Estimated Local Costs for
Mobile CARE

	7 Week Site Operational Hours Per Week			Additional Weekly Costs Operational Hours Per Week		
	55	65	80	55	65	80
Local Expense Items						
Electrical Installation	$ 600	$ 600	$ 600			
Electrical Service	700	700	700	$ 100	$ 100	$ 100
Computer Operator at $3.50/hr beyond 40 hrs./week	416	704	1120	52	88	140
Proctors at $2.50/hr	1100	1300	1600	138	162	200
	$2816	$3304	$4020	$ 290	$ 350	440
Fixed Cost Service Agreement with Penn State	$4500	$4500	$4500	$ 600	$ 600	$ 600
Sub Total Local Cost	$7316	$7804	$8520	$ 890	$ 950	$1040
For Institutions Granting Semester Credits:						
Number of Teachers Receiving one 3-credit Course	150	180	220	20	25	30
Revenue Received from Student Registration at $10/credit	$4500	$5400	$6600	$ 600	$ 750	$ 900
Total Estimated Local Cost	$2816	$2404	$1920	$ 290	$ 200	$ 140
For Institutions Granting Quarter Credits:						
Number of Teachers Receiving one 4-credit course	150	180	220	20	25	30
Revenue Received from Student Registration at $7.50/credit	$4500	$5400	$6600	$ 600	$ 750	$ 900
Total Estimated Local Cost	$2816	$2404	$1920	$ 290	$ 200	$ 140

Cost estimates applicable through May 31, 1976

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Mobile CAI Laboratory
Typical Operational and Utilization Schedules*

Days	Hours	Hours/Week
Monday - Friday	3:00 P.M. - 10:00 P.M.	35
Saturday	9:00 A.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		55

Days	Hours	Hours/Week
Monday - Friday	1:00 P.M. - 10:00 P.M.	45
Saturday	9:00 P.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		65

Days	Hours	Hours/Week
Monday - Friday	10:00 A.M. - 10:00 P.M.	60
Saturday	9:00 A.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		80

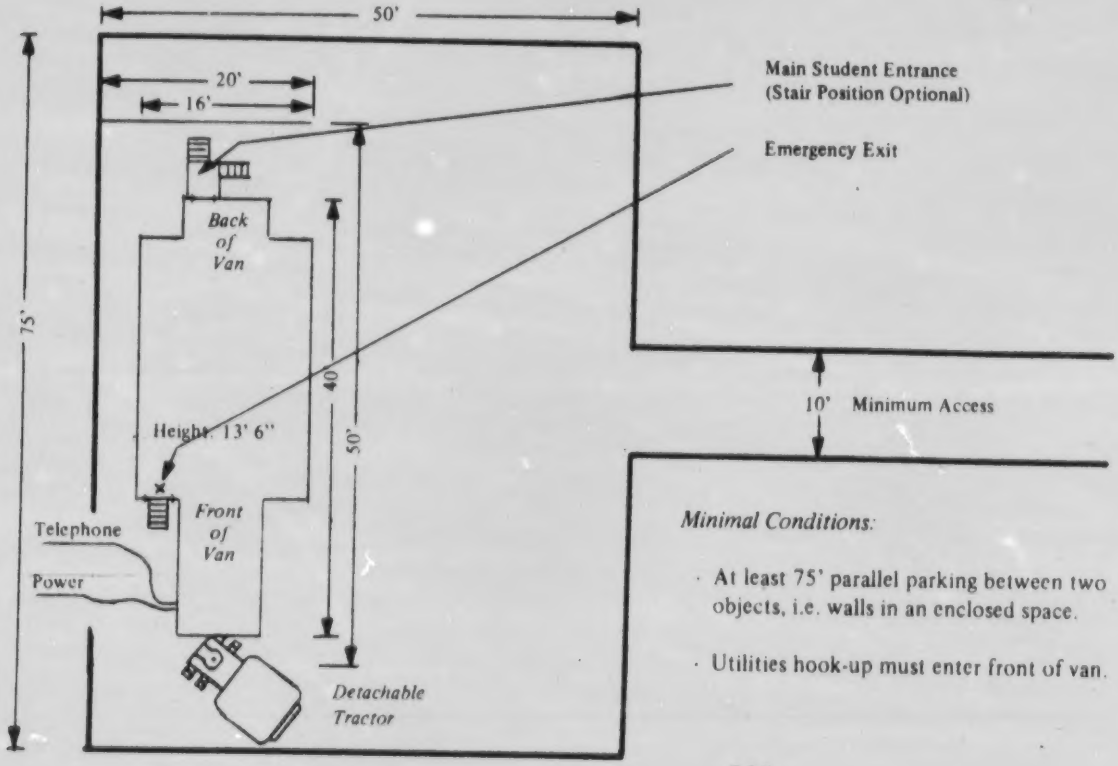
* Final operational schedule is adjusted to meet the needs of the students.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Site Suitability Checklist

Physical Characteristics

1. Size:
   a. Maneuvering and setup space: 75' x 50'
   b. Parking space: 50' x 20' x 13'6" (height clearance) (approximately the the same area required for parking five passenger cars).
2. Base constructed of concrete or "black top"
3. Capable of supporting 60,000 lbs.
4. Grade less than 5% (5/8" per foot)
5. Completely out of traffic, away from playgrounds, etc.
6. Near restroom facilities 9:00 A.M. - 12:00 P.M. 7 days/week
7. Adequate electrical service (see attached specifications)
8. Adequate proximity to telephone connection
9. Adequate parking for 18-20 cars and van
10. Can be reached at all hours
11. Other:



Minimal Conditions:

- At least 75' parallel parking between two objects, i.e. walls in an enclosed space.
- Utilities hook-up must enter front of van.

___ Compile local details for:

Student Recruiting
Preregistration
Registration

The information provided to Penn State by the local sponsoring agency on the form appearing on the following pages will be used to produce a student recruiting brochure for the local sponsoring agency. The brochure will be similar in format to the tabloid brochure (in the back pocket of this binder) and can be used for direct recruiting of perspective students.

It is important that complete, accurate information be provided during the 15th week before instruction is to begin to allow ample time for printing and return of the recruiting materials to the local sponsoring agency for their use.

Student Recruitment

The material on the following pages dealing with student recruitment is organized according to the time line required for accomplishing the specified tasks. However, if the material were to be ranked according to most effective recruiting techniques, personal contact with individuals would be at the top of the list. The best recruiting that is done is done by word of mouth. A plan should be established for talking with as many perspective students as is possible. Arrangements should be made to meet with teacher groups at their regular faculty meetings for the purpose of explaing the program and allowing them an opportunity to ask questions and preregister for the program.

Techniques for Publicizing CARE

A Check List

1. Direct Mail

_____ Brochure
_____ Letter
_____ "Penn State Announces" flyer
_____ Postal reminder
_____ Personal letter to selected individuals

2. Newspaper Stories and Announcements

_____ Newspaper articles
_____ Radio and TV announcements
_____ Articles and photos in company magazines
_____ Announcements in organizational bulletins
_____ Articles in shoppers' guides
_____ Articles in journals (educational, trade, etc.)

3. Paid Advertising

_____ Newspaper display ads
_____ Radio & TV spots
_____ Journals
_____ Trade publications

4. Placards

_____ Bulletin boards
_____ Counters, windows

5. Displays

_____ Window or lobby

6. Talks

_____ Groups and organizations

7. Personal Contacts

_____ Officers or key persons in civic, professional, educational, and service organizations.

PROMOTION
A SAMPLE CHECKLIST

DIRECT MAIL

1. Review existing mailing lists to determine if the right people can be reached by mail.
2. Estimate number of mailing pieces required.
   a. Number of addresses on mailing lists.
   b. Number of pieces for internal use.
   c. Number of pieces for planning committee.
   d. Number of pieces for distribution by methods other than direct mail.
3. Check supply of envelopes.
4. Determine costs for printing, addressing, mailing.
5. Timetable for printing and mailing.
   a. Establish deadline for registration or pre-registration by mail.
   b. Date copy will be written.
   c. Date copy will be submitted for printing.
   d. Date printing will be completed.
   e. Dates for addressing, stuffing and sorting for bulk mailing.
   f. Mailing date.

PLANNING COMMITTEE

1. List promotional activities to be conducted by the committee.
2. List follow-up actions with the committee - dates for meetings, phone calls to members, visits with members.

3. Determine number of brochures required by the committee.
4. Arrange for the committee to make progress reports - set goals and deadlines.

NEWSPAPER ADVERTISING

1. Select newspapers.
   a. Useful circulation of each paper.
   b. Useful circulation area.
   c. Type of subscribers.
   d. Frequency of publication.
2. Advertising budget.
   a. Cost per column inch.
   b. Size of ads.
   c. Frequency of ads.
   d. Total cost for all ads.
3. Timetable.
   a. Deadline for writing copy.
   b. Deadline for submitting ads.
   c. Dates advertisements will run.

NEWSPAPER STORIES

1. Determine what response you want from newspaper stories. What use of information or appeal will activate the desired response.
2. How many news stories will you run? Frequency?
3. Arrange for photographs by contacting a local photographer or local newspaper or use photographs provided with this guide.
4. Timetable.
   a. Dates for writing stories.
   b. Deadlines for submitting stories to newspapers.
   c. Publication dates.

PLACARDS

1. Determine audience. Can they be reached by placards?
2. Analyze your message and the response you want. Can this be achieved by placards?
3. Determine if there is sufficient time for printing, distribution and display.
4. Develop a distribution list.
   a. Obtain permission to display placards.
   b. Can placards be displayed adequately at each location.
   c. Will the display location be appropriate and in good taste.
   d. Determine how many placards are required for the coverage planned.
5. Determine cost for printing and distribution.
6. Plan methods of distribution.
   a. Develop mailing lists.
   b. Develop a personal contact list with names, offices and phone numbers of contacts.
7. Timetable.
   a. Dates for writing copy.
   b. Dates for submitting copy for printing.
   c. Dates placards will be available from the printer.
   d. Distribution dates.
   e. Display periods - time between posting placards and registration date.

INSTITUTION CALLS

1. Compile a list of all agencies that may be interested in the CARE courses. Include the following:
   a. Public schools - teachers, substitute teachers, aides, and administrators, elementary, secondary, kindergartens.
   b. Private schools - teachers, substitute teachers, aides, and administrators, elementary, secondary, kindergarten, nursery.
   c. Parochial schools - teachers, substitute teachers, aides, and administrators, elementary, secondary, kindergarten, nursery.

d. Day care centers - all personnel
e. Head-start centers - all personnel.
f. Welfare centers - social workers, etc.
g. Hospitals - children's wards, nurses, etc.
h. Local colleges - teachers and administrators, prep schools, community colleges, etc.
i. Vocational/technical schools - teachers, etc.
j. Association of Parents' of Handicapped Children.
k. Residential Institution - all personnel.

2. Schedule appointments.
   a. Arrange to meet with key personnel - describe the mainstream effort, & the impact CARE will have on regular teachers with "mainstreamed" children.
   b. If promotional literature is not available, arrange to mail literature or schedule follow-up calls.
   c. Obtain information about their publications and supply them with stories or announcements.

HOUSE ORGANS

1. List all house organs published by agencies that may have employees interested in the CARE courses.
2. List publication dates.
   a. Determine if there is sufficient time to use this medium.
   b. Establish deadlines for submitting stories and announcements.
3. Write stories and announcements.
   a. Slant stories for the type of publication - brief announcements for the small, mimeographed publications; detailed, well developed stories for the larger publications; stories with picture where applicable.
4. Arrange for follow-up stories.
   a. Invite editors to visit mobile van after instruction begins.

PERSONAL LETTERS

1. List all individuals who should receive personal letters.
2. Determine if there is sufficient time to accomplish typing and mailing.
3. Develop brief and concise text.
4. Timetable.
   a. Set dates for typing.
   b. Establish mailing dates.
6. Prepare originally typed and signed letters.

TELEPHONE

1. Determine if project can be promoted by telephone - can the message be communicated and action encouraged by telephone.
2. Are there available lists appropriate for telephone promotion.
3. Is there sufficient staff qualified to conduct promotion by telephone.
4. Will the activity interfere with regular and necessary telephone service.
5. Planning and development.
   a. Determine the text of the message. Prepare sample conversations.
   b. Conduct briefing sessions for those who will be doing the phoning.
   c. Schedule calls based on a study of the routine and activities of those being phoned.

RADIO ANNOUNCEMENTS

1. Select radio stations.
2. Determine length and number of announcements for each station.
3. Estimate costs.
   a. check on public service time.
   b. Check on coverage available in addition to paid spots.
4. Timetable.
   a. Dates for writing announcements.
   b. Dates for submitting announcements.
   c. Broadcast dates, times, frequency.

TV ADVERTISING

1. Select TV stations.
   a. Analyze useful coverage.
   b. Obtain information about available time.
2. Determine length and number of announcements.
3. Estimate costs.
   a. Check on public service time.
   b. Production costs.
   c. Broadcast
4. Timetable
   a. Dates for writing copy.
   b. Dates for preparing art work or visual aids.
   c. Dates for taping or filming announcements.
   d. Broadcast dates, times.
5. Proof of performance - verification of broadcasts by the TV station.

___ Order student materials

The local sponsoring agency has the responsibility for acquiring all off-line study materials required for the CARE courses and distributing those to the students. Materials which have been printed and prepared by Penn State may be ordered on consignment with unused portions returned to Penn State. According to the service agreement (Article IV, 3B) "payments for study materials shall be made biweekly for all consigned study materials sold, used or distributed. Each payment shall be accompanied by an itemized listing."

The preregistration data currently being collected will provide some indication of the quantity of materials needed. However, it is always advisable to have a sufficient quantity of materials on hand to avoid delaying student progress in the course material.

The Pennsylvania State University
THE COMPUTER ASSISTED INSTRUCTION LABORATORY
201 Chambers Building
University Park, Pennsylvania 16802

814/865–0471

Please send the indicated materials to the address below.

CARE 1 – EEC 400, Introduction to the Identification of Handicapped Children.

a. Cartwright, G. P. & Cartwright, C. A. *Early Identification of Handicapped Children*, The Pennsylvania State University, 1970. University Park, Pa. (Text) _____ Copies @ $3.65 = _____

b. Villwock, M. A., Cartwright, C. A., & Cartwright, G. P. *Early Identification of Handicapped Children*, The Pennsylvania State University, 1971. University Park, Pa. (Syllabus) _____ Copies @ $4.20 = _____

*c. Frankenberg, W. K., Dodds, J. B., & Fandal, A. W. *Denver Developmental Screening Test*, The University of Colorado Medical Center, 1967. Denver.

*d. Hildreth, G. H., Griffiths, N. L., & McGauvran, M. E. *Metropolitan Readiness Tests* (Forms A & B), Harcourt, Brace & Javonovich, 1965. New York.

*e. Pate, J. E. & Webb, W. W. *First Grade Screening Test*, American Guidance Service, 1966. Circle Pines, Minnesota.

CARE 2/3 – EEC 401, Educational Adjustments for Exceptional Children.

a. Cartwright, G. P. & Cartwright, C. A. *Diagnostic Teaching of Preschool & Primary Children*, The Pennsylvania State University, 1973. University Park, Pa. (Text) _____ Copies @ $4.90 = _____

b. Cartwright, G. P. & Cartwright, C. A. *Diagnostic Teaching of Preschool & Primary Children*, The Pennsylvania State University, 1973. University Park, Pa. (Syllabus) _____ Copies @ $3.60 = _____

CARE 4 – EEC 460, Education of Visually Handicapped Children.

*a. American Health Association & The National Society for the Prevention of Blindness. *Teaching About Vision*, 1972. New York.

*b. Pennsylvania Association for the Blind. *Helping the Partially Seeing Child in the Regular Classroom* 1971. Pittsburgh, Pa.

c. Ward, M. E. & Peabody, R. E. *Education of Visually Handicapped Children*, The Pennsylvania State University, 1972. University Park, Pa. _____ Copies @ $3.25 = _____

Total Amount of Order: _____

Not available from Penn State. Please order directly from the publisher.

Name _____ Title _____

Organization _____

Address _____

City _____ State _____ Zip _____

(Make all checks and money orders payable to:
The Pennsylvania State University)

_____ Contact utilities companies - arrange installation dates

8th week from arrival

Arrange for electrical contractor to install power. Arrange for telephone company to supply service to van arrival.

1st week from arrival

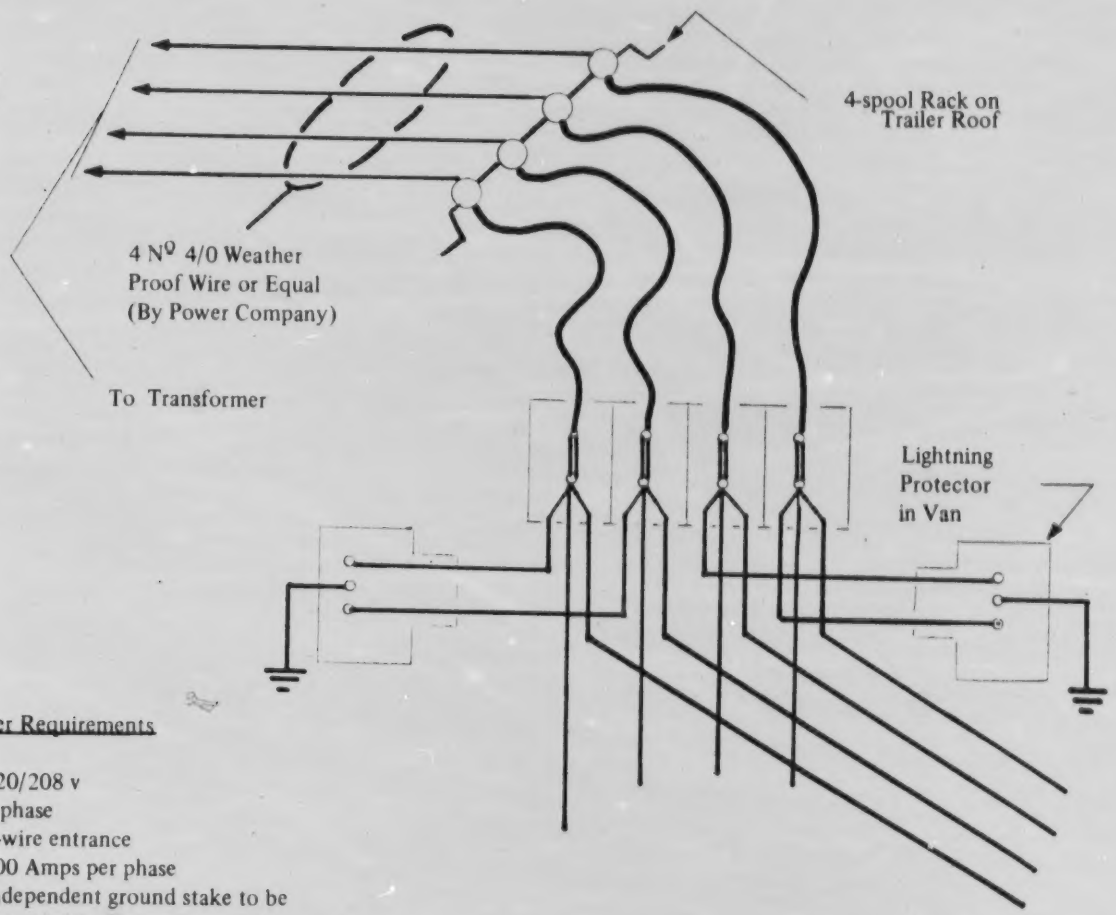
Major electrical installation complete. Telephone arrangement confirmed.

Van arrival

Electrical service w/in 12 hours
Telephone service w/in 12 hours

Time-table for Utilities Installation
in Mobile CAI Laboratory

Electrical and Telephone Specifications
for the Penn State CAI Laboratory

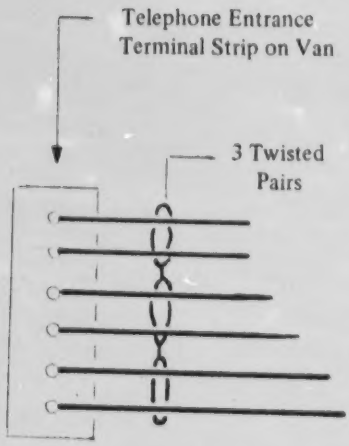


Power Requirements

120/208 v
3 phase
4-wire entrance
200 Amps per phase
Independent ground stake to be
provided by Power Company

Telephone Requirements

Standard instrument with
confidencer and long cord
on receiver



_____ Identify potential proctors & computer operator to be hired locally.

Final selection should be delayed until Mobile Systems Manager can interview candidates and participate in hiring decision.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Responsibilities and Characteristics of the Proctors for the Mobile CAI Laboratory

During the time that the Mobile CAI Laboratory is located within a school district, several persons will be required to serve as proctors. These should be local people who are available to work various schedules so that the Laboratory is adequately staffed during its operating hours, one on duty at all times that the Laboratory is open for instruction.

The proctor serves a dual function by providing assistance to both the student and the Systems Manager. Specific responsibilities could be classified within three major categories:

1. Assist students with problems they encounter either with the hardware or with the course itself.
2. Monitor scheduling, i.e., encourage students to maintain regular progress.
3. Perform a minimum of housekeeping chores with the Laboratory.

Suggested Proctor Characteristics

1. Available for approximately thirty hours per week within the following time limits:

   10:00 a.m. - 10:00 p.m. - Monday thru Friday
   9:00 a.m. - 7:00 p.m. - Saturday
   1:00 p.m. - 11:00 p.m. - Sunday

2. Available for twenty hours of pre-instruction orientation.
3. Between the ages of 17 and 60.
4. Have a high school diploma.
5. Not an authority figure for local teachers. (e.g., administrators, board members, or their wives or secretaries).
6. Personable.
7. At least 5'2" tall.
8. Recommended wage is equivalent to teacher's aides.

The final selection of proctors will be made by the Mobile Systems Manager after interviewing the applicants.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Responsibilities and Characteristics of the Computer Operator for the Mobile CAI Laboratory

Responsibilities

1. Computer operation during the Systems Manager's absence.
   a. Bring the computer up and prepare it for instruction.
   b. Diagnose minor student-station problems and take action (e.g. burned out bulbs, wrong reel for student's audio unit).
   c. Restart the system if an interruption occurs.
   d. Execute a job stream of utility programs at the end of instruction.
   e. Report hardware problems to IBM and the Systems Manager.
   f. Maintain detailed log of all computer abnormalities.
   g. Power down the system at the end of the day.
   h. Maintain a neat and efficient computer installation.
   i. File computer generated reports at the end of the day.
2. Supervise the proctors during the System Manager's absence.
3. Monitor the scheduling system.
   a. Make sure that the appropriate number of students are scheduled for a time period.
   b. Greet students and prepare their stations for instruction.
   c. Contact students to advise them of necessary change in their scheduled appointments.
   d. Identify students who need special assistance in maintaining adequate course progress.
4. Computer taught course.
   a. Record abnormal course activity in the Course Trouble Log.
   b. Record student comments related to course content.
   c. Refer difficult student questions to the Systems Manager or to the course author.
   d. Fill out Course Interrupt Report if a student does not follow normal course flow.
5. Work a 40 to 50 hour week with shifts arranged in conjunction with the Systems Manager.
6. Be available for the entire duration of the instructional site.
7. Occasionally conduct tours and give demonstrations.
8. Represent The Pennsylvania State University during working hours.

Suggested Characteristics

1. Between the ages of 20 and 50 with a high school diploma.
2. Responsible, with a pleasant personality and neat appearance.
3. Skilled in interpersonal relations.
4. Able to work hours described under 5 and 6 above.
5. At least 5'3" tall.
6. Good health, normal hearing, and able to lift 60 pounds weights occasionally.
7. Able to participate in intensive training in the Mobile CAI Laboratory for approximately 3 days prior to the commencement of instruction.
8. Capable of inspiring respect from the proctors and students.

The final selection of the Computer Operator will be made by the Mobile Systems Manager after interviewing the applicants.

_____ Send press releases to local media.

The following press release can be used as is by completing the appropriate local information and submitting it to local news media along with glossy photographs (in pocket of folder).

Teachers, administrators, students and social workers in the

area will soon be able to take college courses for credit in a "computerized classroom on wheels."

Computer Assisted Instruction (CAI) is the basis of a program called CARE - Computer Assisted Renewal Education, which employs the mobile, self-contained van to provide special instruction in the diagnosis and treatment of mildly handicapped children. The traveling van, which has operated successfully in several states, will arrive at

on and stay for a period of

Graduate and undergraduate credit will be granted by

to local professional and student personnel who complete one of the courses.

The program, sponsored locally by

is operated by The Pennsylvania State University under a grant from the Bureau of Education of the Handicapped, U. S. Office of Education.

Persons interested in learning more about the CARE program in this area or in registering for courses may contact

before at

The van will offer four separate 3-credit courses during its stay in the area. These include: CARE 1 - Identification of Handicapped Children; CARE 2 Diagnostic/Prescriptive Teaching of Pre school Children; CARE 3 - Diagnostic/ Prescriptive Teaching of Primary Children; and CARE 4 - Education of Visually Handicapped Children.

The mobile CARE van measures 17 x 40 feet and contains an IBM Instructional System consisting of a computer and 16 student stations. CAI presents instruction by an individualized method in which content is selected and sequenced by the computer in response to each student's needs. CAI utilizes five devices to make possible interaction between the student and the computer.

A cathode-ray tube display (CRT), resembling a TV picture screen, and a light pen, enable students to respond to displayed text, letters, and representations. A keyboard at his station makes it possible for the learner to construct responses, and an image-projector loaded with 16 mm microfilm and a quarter-inch audio tape device are an integral part of each student station.

Each student communicates with the system independently. The computer, in turn, arrives at logical decisions based on its analysis of incoming data and intelligently adapts the instruction for each student. This logicaldecision-making ability is unique to the computer, and, combined with the knowledge and skill of the programmer, adjusts to the wide range of learning differences among students. In this way, CAI provides individualized instruction that no teacher can match in the classroom or lecture. In addition, students are allowed to respond without embarrassment and to schedule their instruction periods with flexibility.

Dr. Keith Hall, supervisor of the program, explains that students who are unfamiliar with CAI are slightly nervous at first about the computer system, but are enthusiastic about it, once they have taken some course material. Because of the immediate feedback and flexibility of scheduling, many students have said they prefer the computer to a live professor.

"The author's personality does come through the program," Dr. Hall explains. "The students, after a while, feel they are conversing with another person and not a computer."

The traditional argument against such computerized education has been that a computer cannot be sensitive to an individual student's needs. However, the computer not only individualizes interaction, it keeps careful track of each student's progress, tailoring a program for each, and even accepting suggestions and criticism.

In contrast to the technical, non-personal language the students expect, most are surprised when the computer calls each by his first name!

An evaluation of the mobile CAI program and of a similar program given in a conventional setting conducted by Penn State showed that CAI students completed the course 33% faster and obtained a mean score 24% higher on the final examination than students instructed in the conventional manner.

_____ Register students

_____ Prepare for van arrival and start of program.

Compile local master data sheet
Notify traffic authorities of van arrival
Assure major electrical work is complete
Confirm telephone installation

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Local Information
Master Data Sheet

Local Personnel and Agencies

Area	Name	Address	Telephone No.
A. Administration contact			
B. Telephone rep.			
C. Power Co. rep.			
D. Security			
E. Operators			
F. Proctors			
G. Van Placement			
H. Student mat.			
I. College credit			
J. Housing			
K. PSU Contact/Area			
L. Hospital			

Student Information (names, addresses, etc.) (Computer printout attached).

Maps and Location Data (attached)

A. Map of area

B. Diagram showing van location and surrounding area

C. Copy of operating schedule

APPENDIX C

Letters Expressing Inability to Finance CARE

NAVAJO COMMUNITY COLLEGE, TSAILE, NAVAJO NATION (ARIZONA) 86503
(602) 724-3311

February 7, 1975

Mr. Keith A. Hall, Director
Computer Assisted Instruction Laboratory
The Pennsylvania State University
College of Education
201 Chambers Building
University Park, Pennsylvania 16802

Dear Mr. Hall

After a strict analysis it is found that Navajo Community College Department of Special Education is unable to come up with the necessary funding to handle the mobile CARE Program.

We thank you for your interest. We believe it is an excellent program.

Sincerely yours,

Mary Locust Pettit

Mary Locust Pettit, Director
Department of Special Education

cc: File
Dean of Instruction
Business Office
Director of Special Education, Navajo Tribe
Mr. Valencia, Windowrock School District
Ms. Jackson, Window Rock School District
Sister Mary Jane, St. Michaels School for Exceptional Children

BOARD OF REGENTS: HOWARD W. GORMAN • GUY GORMAN, SR. • PETER MACDONALD • WILSON C. SKEET • CARL TODACHEENE
DILLON PLATERO • GEORGE JAMES • JOHN C. MARTIN • STUDENT BODY PRESIDENT • CHESTER YELLOWHAIR

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916

COLLEGE OF EDUCATION

DEPARTMENT OF
CURRICULUM AND INSTRUCTION

April 9, 1975

Dr. John Knight
Computer Assisted Instruction
Laboratory
201 Chambers Building
The Pennsylvania State University
University Park, Pa. 16802

Dear Dr. Knight:

Several of us on the University of Tennessee faculty were excited about the possibilities which would have been afforded had the Mobile CARE Program been brought to our campus. The documented success of the program is exceptional.

The basic reason we were unable to serve as a sponsor was one of cost. No additional funds could be made available to us for the project.

Sincerely,

John R. Ray
Professor

JRR/wm

North East Independent School District
10333 BROADWAY - SAN ANTONIO, TEXAS 78286

Office of Superintendent

February 10, 1975

Dr. Keith A. Hall, Director
Computer Assisted Instructional Laboratory
The Pennsylvania State University
College of Education
201 Chambers Building
University Park, Pennsylvania 16802

Dear Dr. Hall:

Thank you for your letter of January 27 describing your exciting program with computer assisted instruction for the purpose of educating regular classroom teachers to be more effective in helping mildly handicapped children in the regular classroom. It appears that the course has much to offer.

Unfortunately, North East School District cannot at this time be a part of a new undertaking of this nature. At the present time, we have serious financial problems in the State of Texas in regard to school finance which prevents us from undertaking any new projects. We could not guarantee that a sufficient number of teachers from our district, plus other districts in the area, would be willing to take the course and pay for it themselves. To attempt to make a commitment on what teachers might do during their summer time off would not be in your best interest in order to meet a budget that you have to have to operate such an innovative program.

In addition, we have a number of activities that are under way that involve the majority of our Central Office staff. Therefore, they would not be able to participate during the July and August plans that you have mentioned.

Good luck with your undertaking and I hope that perhaps at some other time we can be a part of such an excellent teaching concept.

Sincerely yours,

Ivan W. Fitzwater
Superintendent of Schools

IWF/cc

'72

APPENDIX D

Site Brochure

CARE

CARE IS AN INSTRUCTIONAL SERVICE FOR PROFESSIONAL EDUCATORS DEDICATED TO THE EDUCATION OF ALL CHILDREN.

CARE ENABLES THE PROFESSIONAL EDUCATOR TO DEVELOP DIAGNOSTIC SKILLS FOR PLANNING MEANINGFUL INSTRUCTION FOR HANDICAPPED CHILDREN IN THE REGULAR CLASSROOM.

Computer Assisted Renewal Education

CARE IS

The problems of the handicapped, the disabled, and the disadvantaged, long the subject of silent ignorance or inane superstition, have in recent years come to be considered matters of grave national concern. Today, increasing sophistication in diagnosis and treatment is leading many specialists to conclude that not only can these problems and their causes be alleviated, but in many cases they can actually be prevented if they are recognized at a sufficiently early stage of development.

Specialists in early childhood education and special education, in particular, emphasize the need for early diagnosis of educational or behavioral deviancy. It is their conviction that the early years of a child's life are extremely important in terms of personality development and intellectual growth, but they emphasize, too, that early recognition of problems, followed by early intervention with programs designed to promote cognitive and social awareness, is an effective means of at least minimizing the development of handicapping and disabling tendencies.

Unfortunately, few parents are qualified to make such diagnoses. Even more important, perhaps, is the fact that most preschool and primary-level teachers also lack the training necessary to identify children who are handicapped or who exhibit behaviors which may be symptomatic of future educational difficulties.

Recent estimates show that nearly four million of the nation's six million handicapped children are not receiving the special services they need and that the extent of this lack of service is relatively higher in schools located in rural areas than in urban and suburban centers.

Present rates of preparation of special education personnel are not sufficient to diminish the existing gap between needs and available services. Thus, it seems clear that an alternative, or at least an augmented approach, is needed now to provide special services to atypical children.

THE ALTERNATIVE DEVISED

In recognition of that need, a team of specialists at The Pennsylvania State University has devised such an alternative.

The Penn State team has developed a series of computer assisted instruction (CAI) courses in special education to prepare preservice and inservice teachers of elementary and preschool children to identify and deal effectively with conditions in children which may adversely affect their school performance. The courses are made available in a specially designed mobile van to house the computer components safely while the facility is transported to rural and urban sites throughout Pennsylvania and other states.

The purpose of the series of courses is to give educational personnel the knowledge and skills necessary to deal effectively with children who have educational problems; the purpose of the van is to offer that training in such a way that teachers are encouraged to take advantage of it. By moving the van and the course right into the teachers' own neighborhood, and by including the additional convenience factor of self-scheduled individualized instruction, teachers can take the courses in their home communities without disrupting either their academic work schedules or their personal lives.

It is believed by the project staff that computer assisted instruction in a mobile facility represents the first new delivery system for continuing education programs since the advent of broadcast television. The flexibility and individualized nature of the program should make it a prototype for a wide range of adult education services in the future.

CARE ORIENTATION AND OBJECTIVES

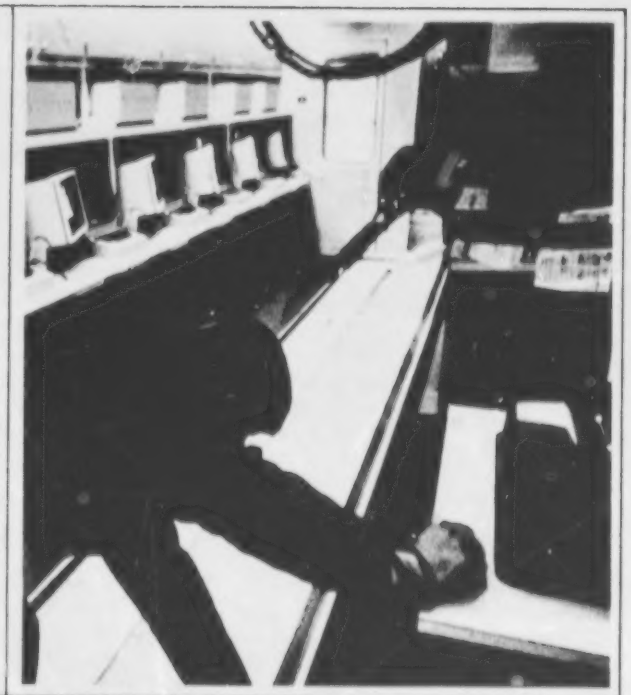
Called CARE (Computer Assisted Renewal Education), the series of courses is made up of completely self-contained college-level, computer assisted instruction courses designed to promote clinical sensitivity on the part of regular classroom teachers and to develop in them a diagnostic awareness and understanding of the strengths and weaknesses of handicapped and normal children.

CARE is principally oriented toward inservice, preschool and primary-level elementary teachers because as specialists point out, unrecognized problems and resulting lack of remedial treatment at this stage in a child's development may cause the child to be academically retarded by the time he is 9 or 10 years old. However, the courses have been designed to be of interest to other educational personnel as well, such as secondary teachers, principals, and other administrators and supervisors; special class supervisors; school nurses, psychologists, aides; special services personnel, and other school-related personnel, including day-care workers.

DISSEMINATION

CARE courses are made available to CAI centers with compatible equipment for the cost of computer tapes and other supplies. One or more CARE courses are currently being used by the Penn State Computer Assisted Instruction Laboratory, University Park, Pennsylvania; Penn State Mobile Computer Assisted Instruction Laboratories; State University of New York, Stony Brook, and University of Alberta, Edmonton, Alberta.

The mobile van is transported to its next site. . .



where it is expanded to form a classsroom 18 feet wide. . .

which is ready for use within several hours. . .

to serve students on an individual basis.

CONVENIENCE A FACTOR

Maximum participation by school personnel in each area where the CARE series is offered is encouraged, in large part, by the scheduling flexibility inherent in the course and the individualized computer system.

The mobile van is transported to sites throughout the United States and set up adjacent to centrally located school buildings. In a short period of time, the 40-foot-long van can be expanded from its traveling width of 8 feet to provide a 17-foot-wide learning environment complete with 16 individual student stations.

The central feature of each student station is a computer terminal consisting of a cathode-ray tube display, a response light pen, a "typewriter-like" keyboard, an audio device, and an image projector (see illustrations).

Instruction is primarily computer-assisted; which means, in effect, that it is completely self-paced. Each student/teacher actually takes an adaptive course geared to his own background, preparation, needs, ability, and rate of progress.

The most prevalent mode of instruction used in CARE is the tutorial approach, which stimulates a master tutor engaging in an interactive dialogue with the learner. The computer/tutor presents information, asks penetrating questions, and analyzes the learner's understanding or lack of understanding demonstrated by those responses; the computer provides alternative or remedial sequences of instruction, and even enrichment material. An inquiry approach and simulation are also used, particulary in the latter stages of the course, to relate the various concepts presented by CARE and to provide problem-solving experiences. More important than any single instructional approach used, however, is the fact that, because each learner can communicate with the computer system independently, and because the computer can arrive at locical decisions based on its analysis of incoming learner performance data, the capability exists for the intelligent adaptation of instruction to each individual learner.

Previous experience has shown that educators are highly motivated by the responsive environment provided at the computer assisted instruction terminal. They appreciate the opportunity to learn without exposing their lack of knowledge to their peers, and they enjoy the flexibility of scheduling which individual sessions of instruction permit. At each location where CARE is offered, the mobile van is open days and nights on school days and weekends as student needs dictate, providing ample opportunity for educators to fit their instruction into their personal timetables.

At Ridgway, Pennsylvania, for example, the high school principal was enrolled for the course and found he had to be away from his post for two weeks. Because of the flexibility of the individualized scheduling system, he was able, upon return to the community, to pick up where he had stopped in the course flow and still complete the program within the overall time limit.

Funds for the construction of the specially designed mobile van were provided in part by the Penn State Foundation. The series of CARE courses was developed and is operated under grants from the Bureau of Education for the Handicapped. The IBM Corporation has provided many useful ideas and a high quality of engineering support. The expandible van was designed and built by the Gerstenslager Company, Wooster, Ohio.

CARE, because of its unique mobility, is at the disposal of professional educators throughout the entire nation. Sites which CARE has served in the past, or is scheduled to serve in the near future, are displayed below.

For information write to:

The Pennsylvania State University
Computer Assisted Instruction Laboratory
201 Chambers Building
University Park, Pennsylvania 16802

CARE 1: EARLY IDENTIFICATION OF HANDICAPPED CHILDREN

For the purposes of CARE, handicapped children are defined as those children who display deviations from normal behavior in the cognitive, the affective, and/or the psychomotor domain. Principal emphasis is directed toward those atypical conditions or characteristics which have relevance for teaching.

The philosophy of the course is such that teachers are encouraged to look at children as individuals. Course material has been designed to illustrate that the most fruitful approach for improving education is for teachers to work with the observable behaviors of children. The use of traditional categories is minimal; however, certain terms and concepts related to handicapping conditions are taught so that persons who take the course are better able to communicate with other professionals concerned with handicapped children.

Upon completion of the course, it is expected that participants will:

1. Know the characteristics of handicapped children and be aware of symptoms which are indicative of potential learning problems.
2. Be able to screen all children in regular classroom programs for deviations and determine the extent of their inter-individual differences.
3. Be able to select and use for those children with deviations the appropriate commercial and teacher-constructed appraisal and diagnostic procedures in order to obtain more precise information as to the nature of the deviation.
4. Be able to synthesize information by preparing individual profiles of each child's strengths and weaknesses on educationally relevant variables.
5. Be able to evaluate the adequacy of the information available in order to make appropriate decisions about referral to specialists.
6. Be able to prepare adequate documentation for the case if the decision to refer is affirmative.

It is expected that teachers who exhibit the competencies described in these objectives will systematically evaluate children's learning potential and formulate appropriate educational plans according to the Decision Model for the Identification of Handicapped Children (Figure 1) developed for CARE 1.

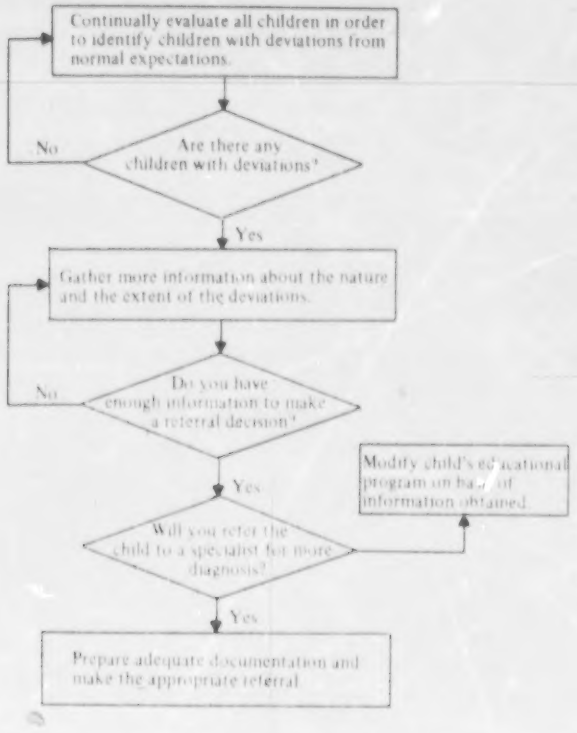

Continually evaluate all children in order to identify children with deviations from normal expectations.
Are there any children with deviations?
No
Yes
Gather more information about the nature and the extent of the deviations.
Do you have enough information to make a referral decision?
No
Yes
Modify child's educational program on basis of information obtained.
Will you refer the child to a specialist for more diagnosis?
Yes
Prepare adequate documentation and make the appropriate referral.

Fig. 1. Decision Model for the Identification of Handicapped Children

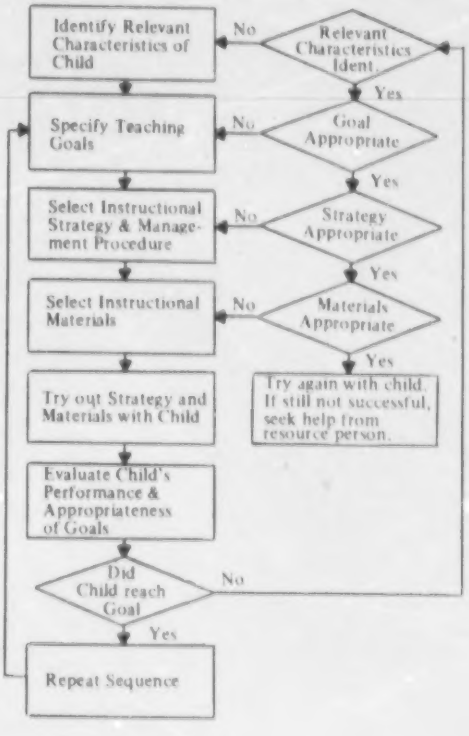


Fig. 2. Decision Model for Diagnostic Teaching.

CARE 2 and CARE 3: DIAGNOSTIC PRESCRIPTIVE TEACHING OF PRESCHOOL AND PRIMARY CHILDREN

CARE 2 and CARE 3 are designed to prepare teachers of preschool children (CARE 2) and teachers of primary grade children (CARE 3) as well as child care workers to work effectively with children who may be experiencing learning difficulties. An important component of the CARE 2 and CARE 3 courses is the Diagnostic-Teaching Model (Figure 2) which provides teaching personnel with an outline of procedures to follow as they deal with children's learning problems both in the affective and cognitive domains.

The Diagnostic Teaching Model is applicable to both preservice and inservice training of special educators and regular elementary teachers. The following eight objectives delineate the basic set of global competencies that are required to carry out the model:

1. Identify characteristics of individual children that indicate special teaching or management procedures are required.
2. Specify relevant educational objectives for individual children.
3. Select techniques for effective classroom management.
4. Choose and use specialized teaching strategies for reaching specific objectives for children with varying behavioral and learning characteristics.
5. Choose and use special materials in association with specific strategies.
6. Identify and use appropriate evaluation procedures.
7. Draw upon existing sources of information regarding specialized strategies and materials.
8. Consult with available resource persons for assistance.

A modular approach, illustrated in Figure 3, was used in the development of CARE 2 and CARE 3. Both courses share a core of information, procedures, and strategies. The examples and simulated case studies in which the students apply the principles, however, are appropriate for the age-group of children to which each is directed.

CARE 4: EDUCATION OF VISUALLY HANDICAPPED CHILDREN

CARE 4 or Education of Visually Handicapped Children focuses on teaching children who are partially seeing or blind. The purpose of the course is to equip elementary and secondary classroom teachers and other school personnel with the knowledge and skills necessary to work effectively with visually handicapped children in their regular classes. Content is appropriate for both inservice and preservice teachers.

The course objectives for CARE 4 are designed to enable the student to apply the Diagnostic Teaching Model developed for CARE 2 and CARE 3 to the teaching of children with limited vision.

Students who complete CARE 4 are expected to:

1. Identify educationally relevant characteristics of visually handicapped children.
2. Construct instructional objectives for these children.
3. Select suitable media and materials for instruction.
4. Arrange proper classroom environmental conditions.
5. Design instructional procedures to facilitate learning.
6. Utilize appropriate techniques for evaluating performance.

[a]Dashed line indicates that the same format is used for both courses; teaching strategy (and programming) are the same but content differs.

[b]Basic content and strategies are the same for both.

Fig. 3. Relationship between CARE 2 and CARE 3 modules.

CARE

HIGHLIGHTS OF CARE PROGRAM
FOR TEACHER TRAINING

Trains regular teachers and other education personnel in special education subject matter. Prepares regular teachers to educate handicapped children in regular classes.

Offers a tested, high-quality set of courses (CARE 1-6).

Instruction is individually-adapted and offered at flexible, convenient times and locations.

Full graduate credit offered by either The Pennsylvania State University or a local cooperating college or university.

600-650 credits per seven-week site easily achieved. No extra cost for additional credit completions.

Cost, about $150 per 3 credit course completion, depending upon size of target population in communities or neighborhoods and frequency of vehicle movement.

Choice of locations determined by contracting agency.

1 WHAT IS CARE? 1

2 HOW WAS CARE DEVELOPED? 6

3 IS CARE EFFECTIVE? 7

4 HOW IS CARE MADE AVAILABLE TO TEACHERS? 8

5 WHAT DO YOU PROVIDE FOR CARE? 10

6 WHAT DOES PENN STATE PROVIDE FOR CARE? 11

7 HOW MUCH DOES CARE COST PER TEACHER? 12

8 WHERE CAN YOU SEE CARE IN USE? 13

9 HOW DO YOU OBTAIN CARE IN YOUR AREA? 14

10 DO YOU WANT ADDITIONAL CARE INFORMATION? 15

1 WHAT IS CARE?

THE CARE CURRICULUM

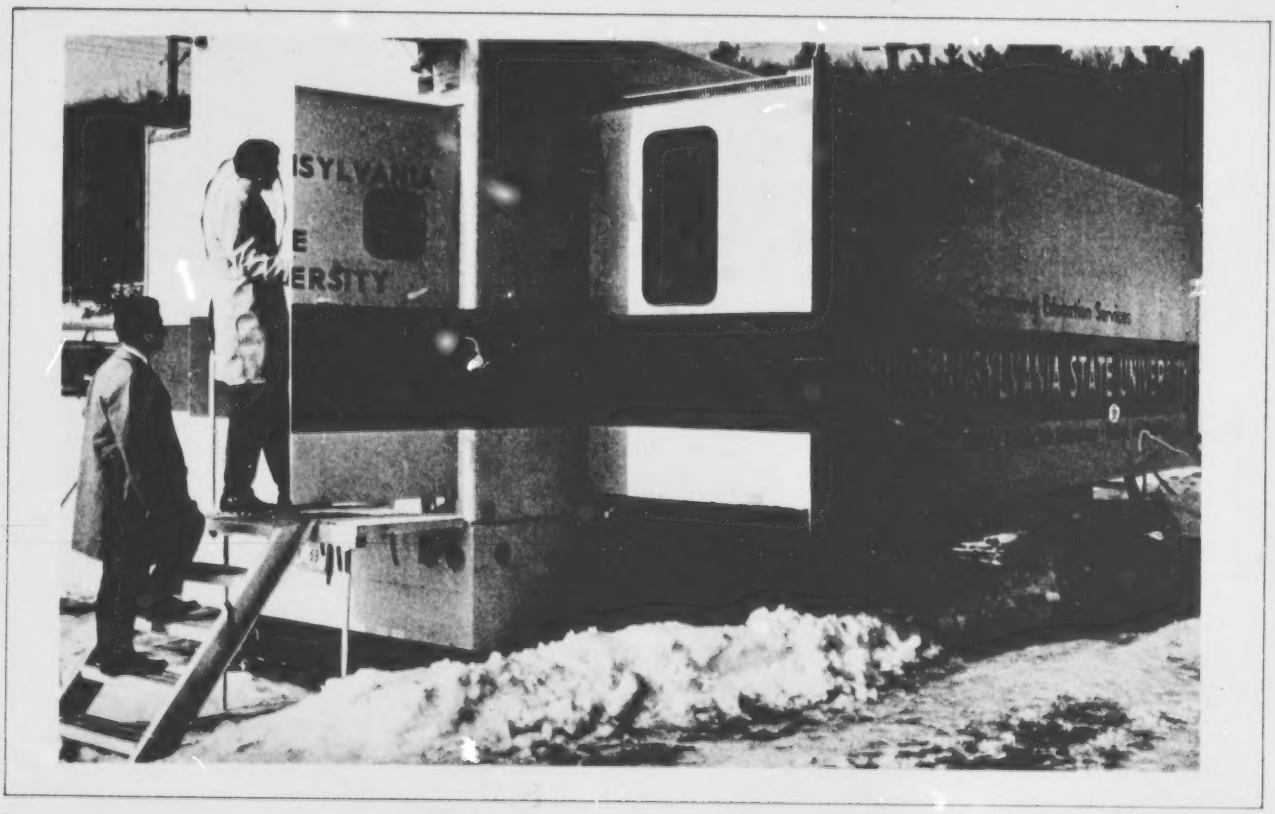
Called CARE (Computer Assisted Renewal Education), the series of courses is made up of wholly self-contained, college-level, computer-assisted instruction courses designed to promote clinical sensitivity on the part of regular classroom teachers and to develop in them a diagnostic awareness and understanding of the strengths and weaknesses of handicapped and normal children.

CARE is principally oriented toward inservice, preschool, and primary-level elementary teachers because, as specialists point out, unrecognized problems and resulting lack of remedial treatment at this stage in a child's development may cause the child to be academically retarded by the time he is nine or ten years old. However, the courses have been designed to be of interest to other educational personnel as well—such as secondary teachers, principals, supervisors, and other administrators; special class supervisors; school nurses, psychologists, aides; special services personnel; and other school-related personnel, including day-care workers.

CARE 1: EARLY IDENTIFICATION OF HANDICAPPED CHILDREN (3 Credits)

For the purposes of CARE, handicapped children are defined as those children who display deviations from normal behavior in the cognitive, the affective, and/or the psychomotor domain. Principal emphasis is directed toward those atypical conditions or characteristics which have relevance for teaching.

The philosophy of the course is such that teachers are encouraged to view children as individuals. Course material has been designed to illustrate that the most fruitful approach for improving education is for teachers to work with the observable behaviors of children. The use of traditional categories is minimal; however, certain terms and concepts related to handicapping conditions are taught so that persons who take the course are better able to communicate with other professionals concerned with handicapped children.



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Upon completion of the course, it is expected that participants will:

1. Know the characteristics of handicapped children and be aware of symptoms which are indicative of potential learning problems.
2. Be able to screen all children in regular classroom programs for deviations and determine the extent of the inter-individual differences.
3. Be able to select and use for those children with deviations the appropriate commercial and teacher-constructed appraisal and diagnostic procedures in order to obtain precise information as to the nature of the deviation.
4. Be able to synthesize information by preparing individual profiles of each child's strengths and weaknesses on educationally-relevant variables.
5. Be able to evaluate the adequacy of the information available in order to make appropriate decisions about referral to specialists.
6. Be able to prepare adequate documentation about the child if the decision to refer is affirmative.

It is expected that teachers who exhibit the competencies described in these objectives will systematically evaluate children's learning potential and formulate appropriate educational plans according to the Decision Model for the Identification of Handicapped Children (Figure 1) developed for CARE 1.

CARE 2 and CARE 3:
DIAGNOSTIC PRESCRIPTIVE TEACHING
OF PRESCHOOL AND PRIMARY CHILDREN (3 Credits Each)

CARE 2 and CARE 3 are designed to prepare teachers of preschool children (CARE 2) and teachers of primary-

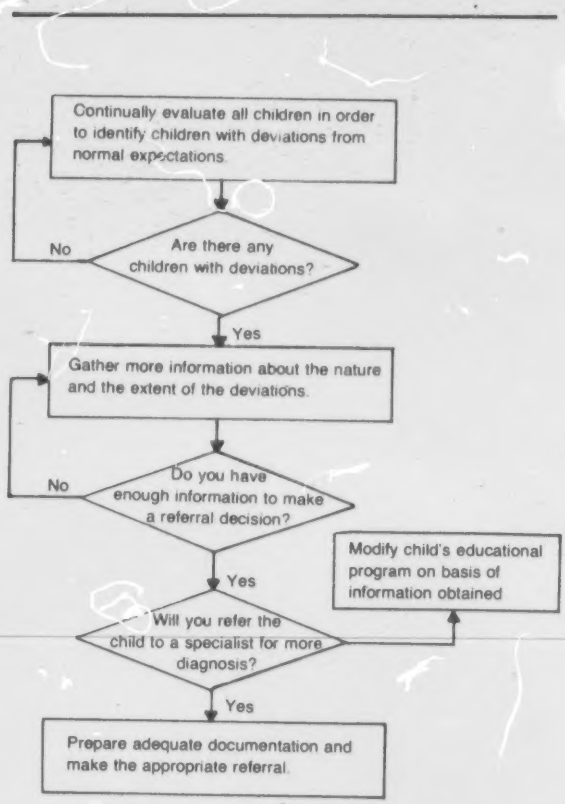

Continually evaluate all children in order to identify children with deviations from normal expectations.
Are there any children with deviations?
No
Yes
Gather more information about the nature and the extent of the deviations.
Do you have enough information to make a referral decision?
No
Yes
Modify child's educational program on basis of information obtained
Will you refer the child to a specialist for more diagnosis?
Yes
Prepare adequate documentation and make the appropriate referral.

Fig. 1. Decision Model for the Identification of Handicapped Children.

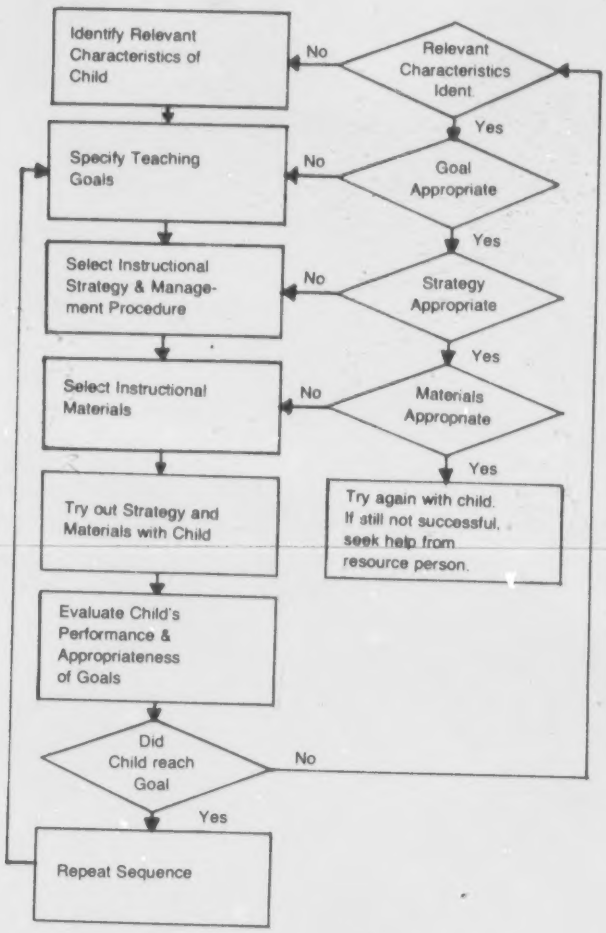


Fig. 2. Decision Model for Diagnostic Teaching.

grade children (CARE 3) as well as child care workers to work effectively with children who may be experiencing learning difficulties. An important component of the CARE 2 and CARE 3 courses is the Diagnostic Teaching Model (Figure 2) which provides teaching personnel with an outline of procedures to follow as they deal with children's learning problems both in the affective and cognitive domains.

The Diagnostic Teaching Model is appropriate for training both preservice and inservice teachers as well as special educators. The following eight objectives set forth the basic global competencies that are required to carry out the procedures specificed in the model:

1. Identify characteristics of individual children that indicate special teaching or management procedures are required.
2. Specify relevant educational objectives for individual children.
3. Select techniques for effective classroom management.
4. Choose and use specialized teaching strategies for teaching specific objectives for children with varying behavioral and learning characteristics.
5. Choose and use special materials in association with specific strategies.
6. Identify and use appropriate evaluation procedures.
7. Draw upon existing sources of information regarding specialized strategies and materials.
8. Consult with available resource persons for assistance.

A modular approach (Figure 3) was used in the development of CARE 2 and CARE 3. Both courses share a core of information, procedures, and strategies. The examples and simulated case studies in which the students apply the principles, however, are appropriate for the age-group of children to which each is directed.

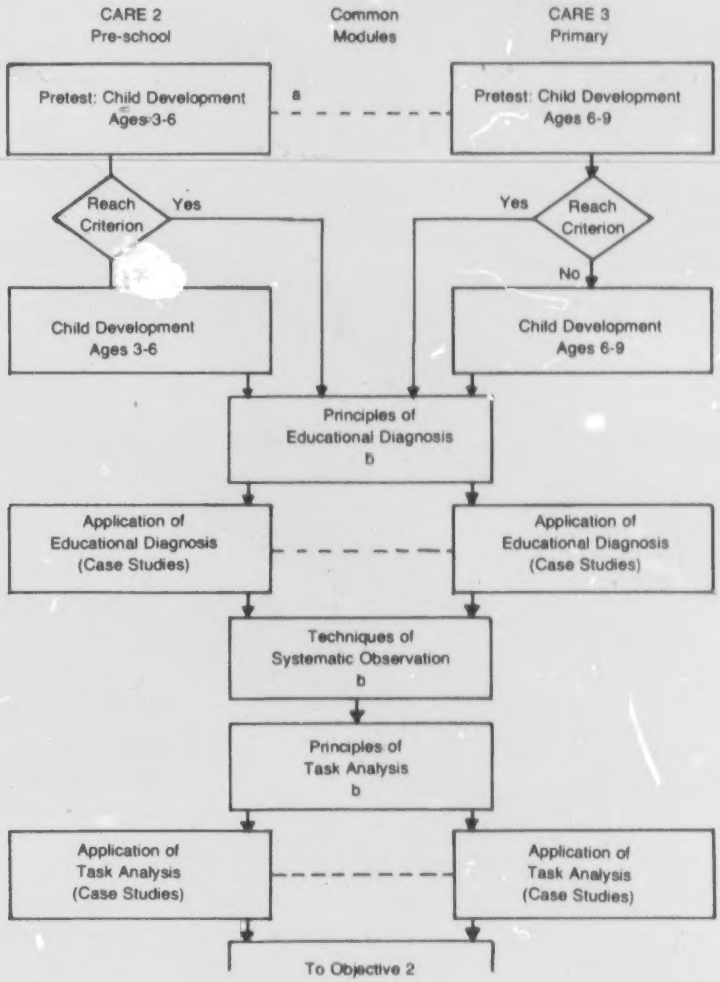
CARE 4: EDUCATION OF VISUALLY HANDICAPPED CHILDREN (1 Credit)

CARE 4 or Education of Visually Handicapped Children focuses on teaching children who are partially seeing or blind. The purpose of the course is to equip elementary and secondary classroom teachers and other school personnel with the knowledge and skills necessary to work effectively with visually handicapped children in their regular classes. Content is appropriate for both inservice and preservice teachers.

The course objectives for CARE 4 are designed to enable the teacher to use the Diagnostic Teaching Model developed for CARE 2 and CARE 3 in the teaching of children with limited vision.

Participants who complete CARE 4 are expected to:

1. Identify educationally relevant characteristics of visually handicapped children.
2. Construct instructional objectives for these children.
3. Select suitable media and materials for instruction.
4. Arrange proper classroom environmental conditions.
5. Design instructional procedures to facilitate learning.
6. Utilize appropriate techniques for evaluating performance.



[a] Dashed line indicates that the same format is used for both courses; teaching strategy (and programing) are the same but content differs.

[b] Basic content and strategies are the same for both.

Fig. 3. Relationship between CARE 2 and CARE 3 modules.

PROPOSED COURSES

Two additional courses have recently been proposed for the CARE series: CARE 5, Teaching Hearing-Impaired Children, and CARE 6, Computer Assisted Instructional Experiences Designed for Teachers of the Severely Handicapped.

CARE 5 is intended for regular classroom teachers who may have children with varying degrees of hearing loss in their classes. The teachers who complete the course will have the ability to modify the classroom environment, instructional procedures, and materials in ways which will enhance the learning of hearing-impaired children.

CARE 6 will be developed for teachers of children who have been designated severely handicapped. A series of competency-based modules will be designed to provide teaching personnel with learning experiences dealing with the development, assessment, and educational programming of severely handicapped children.

CARE AUTHORS AND CONSULTANTS

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Karen Braddock	The Pennsylvania State University	Vision, Instructional Programing
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Dennis Deck	The Pennsylvania State University	Educational Psychology
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John Moyer	The Pennsylvania State University	Information Retrieval, Instructional Materials
Charles Orlando	Alfred University	Primary Reading
Ralph Peabody	University of Pittsburgh	Vision
Herbert Quay	Temple University	Special Education
Lucille Ribble	The Pennsylvania State University	Systematic Observation
Maynard Reynolds	University of Minnesota	Special Education
Gerald Robine	The Pennsylvania State University	Physically Handicapped
David Sabatino	The Pennsylvania State University	Learning Disability
Mary Sabatino	The Pennsylvania State University	Vision
John Salvia	The Pennsylvania State University	Special Education, Evaluation
Judy Seaver	The Pennsylvania State University	Early Childhood Education
Robert Sedlak	The Pennsylvania State University	Drug Abuse
Charles Spinazola	The Pennsylvania State University	Early Childhood Education Emotional Disturbance
Susan Swidzinski	University of Minnesota	Behavior Management
Ruby Thompson	Atlanta University	Primary Reading
Mary Ann Villwock	University of California, Davis	Measured Achievement
Stanley Vitello	The Pennsylvania State University	Mathematics, Mentally Retarded
Marjorie Ward	The Pennsylvania State University	Vision, Instructional Materials

2 HOW WAS CARE DEVELOPED?

Development of sophisticated CAI courses is a complex and expensive procedure. Each course undergoes a rigorous research and development program before it is released for general use. The general steps that are taken to produce a CAI course are as follows:

1. On-campus consultation — basic ideas and strategies are reviewed with colleagues.
2. Preliminary literature review.
3. Grant request prepared — course content and strategies, as well as developmental procedures, are spelled out in detail; independent field readers review proposal and make suggestions for revision, and federally appointed consultants review preliminary materials with staff.
4. Extensive literature review.
5. Consultation — CAI and content specialists consult with staff.
6. Preparation of first program draft.
7. Staff review — staff and authors review drafts of materials.
8. Student tryout — staff members observe 15-20 students trying out the materials.
9. Curriculum revision — using data collected from student tryout.
10. Student tryout — 20-25 students try out the materials "on their own."
11. Curriculum revision.
12. Operational field test — 100-125 students take the course for credit in an independent field environment to assure that the course is "exportable."

After each one of the steps is carried out, revisions are made to the developing course. For steps 1 through 5 above, revisions are based upon expert opinion and the state of the literature (learning theory, CAI, special education). In steps 8, 9 and 11, extensive student data are used to provide the instructional development specialists with the kinds of information needed to improve the course. Major revisions in course content and strategy are made based on these student performance records.

Further revisions are based on student records collected across sites. For example, revisions to CARE 1 have been based on analysis of over 500,000 student responses made by 2,000 students over a period of two years.

3 IS CARE EFFECTIVE?

Educators who have taken the courses report a high degree of satisfaction with the curriculum and with the method of instruction. Measured average increases in subject matter achievement on the part of participants have been substantial. For example, in one study, students who took the CARE 1 course via CAI averaged scores on the final exam which were 24% higher than the scores of students who took the same course in the traditional classroom. Also, CAI students have realized a considerable savings in time when compared with students instructed in the conventional manner. In the same study, the CAI students completed the course material in 33% less time than that course taken by their peers in lecture/discussion classes.

Further evaluative information was obtained from a study of the opinions of 31 regular classroom teachers in Pennsylvania. These teachers took the CARE 1 course during September and October of 1971. A follow-up study was made in July of 1972. Some typical results are shown in the following:

Would you say that after taking the course you were more aware of individual differences in children?
Yes-94%; No-6%

As a result of taking the course, do you feel better able to identify behaviors which may be signs of potential learning problems?
Yes-100%; No-0%

Would you take another course by CAI?
Yes-100%; No-0%

Did you find that CAI was a more convenient way of taking the course than attending classes at a local college or university?
Yes-100%; No-0%

These results can be summarized briefly as follows. First, inservice teachers do find the content of CARE 1 to be useful in dealing with the needs of children; and second, they like instruction by computer in that 100% say they would take another course by CAI and they feel that CAI is more convenient than attending classes in a college or university.

Following are excerpts from statements by CARE students and a school administrator:

". . . My mother, who is a sixth-grade school teacher, has had for years a hearing problem. About ten years ago, it became serious enough for her to wear a hearing aid. . . One particular part of your computer-assisted course helped me to understand how my mother's hearing problem caused her to have such a low tolerance for some kinds of noise — it was the part that took such sounds and scrambled them so that they would come across to one with normal hearing something like they sound to one with a hearing handicap. . . With this new understanding of hearing losses and the effect they have on behavior, I talked with my father about encouraging my mother to see a specialist. . . . Yesterday, my mother discovered that her condition is operable, with 99% chance of success. You can appreciate my excitement and my sense of gratitude to you and to those who shared with you the building of your course. One thing seems particularly significant to me. In a conventional kind of course, I might have acquired the same basic "information," but I would never have heard what a person with a hearing handicap hears. It was the intelligent and imaginative use of technology that gave me the ability to link together the data of the course with my mother's behavior to draw the inferences I drew and to share them with my parents. Thank you. . ."

". . . My colleagues here and at the University of Houston agree that this is one of the most impressive developments we have seen toward the end of providing a continuous progress individualized learning program As you know, CARE 1 is being taken by administrators from every level of the system, educational specialists, counselors, nurses, teachers, and full-time students, and their response has been overwhelmingly favorable. The course content and the format are excellent. This is no doubt the most comprehensive course of its kind in the country. . . After such a positive experience with this project, we are dismayed to think of it ever leaving, but we are hopeful you will be able to schedule us again in the near future. . ."

". . . I liked it because I was given much learning in a short time without having to travel a long distance."

". . . After two years of PSU's mass education it was a joy to get some individual attention."

". . . I liked it because it enabled me to take an active part. I find regular classroom instruction very boring."

". . . The course seems relevant to the teachers who will use the material presented every day. . . Can't wait for a follow-up course in remedial techniques."

". . . I liked the freedom of scheduling my own time and not having a strict schedule."

4 HOW IS CARE MADE AVAILABLE TO TEACHERS?

In order to make CARE readily available to teachers and educators in all parts of the country, a custom-built transportable laboratory was designed to house an IBM 1500 computer-assisted instruction system and sixteen student stations. In the closed condition, the forty-foot van is only eight feet wide and meets the highway specifications of every state in the Union. After reaching its destination the van can be expanded to provide a comfortable air-conditioned learning environment which is seventeen feet wide.

On a prearranged schedule, the mobile CAI laboratory is moved to a community school and connected to electric and telephone services. Over the next seven weeks, in late afternoon and evening hours, elementary teachers and their supervisors are scheduled for one-to-three-hour sessions at computer terminals on an individualized basis. These teacher-students can arrange flexible and irregular schedules at the computer terminals to fit into the demands of their personal lives.

Each student station is equipped with a small cathode ray tube (CRT) on which is displayed alphameric information plus a wide variety of graphics including animated illustrations. Sufficient information to fill the CRT is available in micro-seconds from a random access disk. Student response components of the CRT include a typewriter-like keyboard with upper and lower case characters plus a wide variety of special characters and a light-sensitive pen used by the learner in making responses to displayed material. In addition to the CRT, each student station has a rear-screen image projector on which are displayed color photographic images from a 1020-frame, 16mm film with each frame randomly accessible by the computer. The third display component is an individual audio play/record device with randomly accessed, prerecorded messages on standard ¼-inch audio tape. Branching and individualizing teaching strategies have been introduced into the courses to the extent that the present state-of-the-art supports inclusion of these techniques.

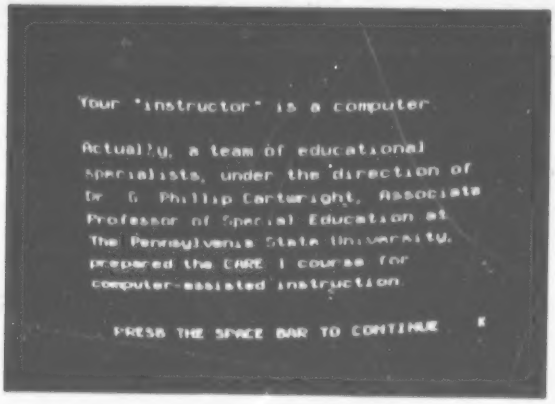
The students interact at the terminals with a teaching program which has been prepared and tested by the members of the faculty of The Pennsylvania State University, in cooperation with the staff of the Computer Assisted Instruction Laboratory. In addition to the program of instruction stored in the computer, each student may be required to use a textbook, a handbook, a set of materials for testing young children, and other appropriate teaching tools.

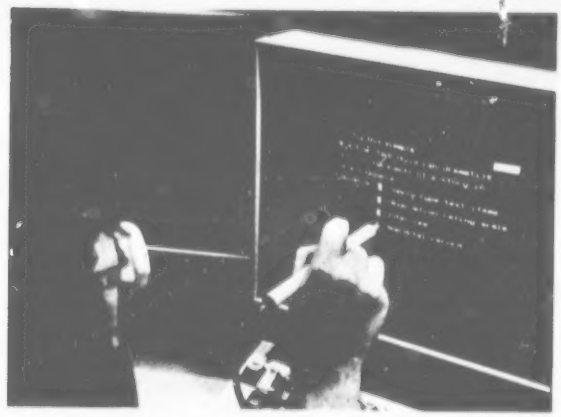
When the teacher-student completes a course, he takes a final examination generated by the computer from a pool of test questions covering the objectives of the course. A complete record of each participant's performance, not only on the test, but on the course as well, is recorded on magnetic tape for summarization, marking, and course improvement by the authors.

Teacher-students are awarded marks and receive graduate level college credit, either by The Pennsylvania State University or by a participating local college or university, appropriate to the amount of curriculum included in the program.

The field staff of the program consists of a computer-system manager and an assistant, plus two proctors who help students with scheduling and student station operation. The faculty member in charge of the course is available from time to time to talk with students in person and can be reached by a telephone located in the vehicle.

Given good teaching material, the success of the program hinges primarily on two major features, the *interactive* quality of the student's instruction at the computer terminal and the *flexibility* which students encounter in arranging for their own instruction. With the computer as an interactive tool, a CAI course seeks to achieve the goal of creating a responsive environment for learning. Such an environment is in sharp contrast with the passive learning situations which most learners encounter in contemporary mass education. Indeed, our adult students on CARE report strong feelings of concentration, quick passage of time at the terminals, and deep involvement in the subject matter.


Your "instructor" is a computer.
Actually, a team of educational specialists, under the direction of Dr. G. Phillip Cartwright, Associate Professor of Special Education at The Pennsylvania State University, prepared the CARE I course for computer-assisted instruction.
PRESS THE SPACE BAR TO CONTINUE



The *flexibility* feature in the system is based on the fact that the instruction sequence is self-paced by the learner and on the ability of students to fit "on-line" sessions in widely varying time slots. Several school administrators who have taken CARE 1 have commented on their appreciation of the opportunity to skip instruction sessions for ten to fifteen days because of an out-of-town trip and to return precisely to the point where they had previously left off.

The major advantage of this program is that it brings an individualized quality course of instruction on a timely subject to groups of education practitioners who would not otherwise get the benefit of retraining and upgrading. As a by-product, we believe experience in the mobile computer-assisted instruction facility will make teachers more aware of technological advances in education than they are presently. We hope their experience will dispell the aura of mystery which appears to surround computers, and the distrust of computers that many adults possess.

5 WHAT DO YOU PROVIDE FOR CARE?

Sponsoring Agency Provides:

Performance contract with The Pennsylvania State University for a Mobile Inservice Teacher Education Program

Selection of local sites according to needs

Coordination of local sites to get maximum support

Leadership in audience development

Local School District or College Provides:

A paved area 40' x 20' (approximately the same area required for parking five passenger cars) plus additional parking space for eighteen to twenty cars for students and staff

Electrical power and installation (approximately $1,300 per seven-week site)

Availability for telephone service to the Mobile Laboratory (The Pennsylvania State University will assume this expense.)

Nearby rest room facilities

Custodial and security services

Proctors (one on duty during the Mobile Laboratory "open hours"—approximately $1,200 per seven-week site)

Released time for teachers during school hours where feasible

Local coordination and publicity

Assistance with local promotion, and audience development

Classroom Teacher Provides:

An average of thirty hours per 3 credit course (range from twenty to sixty hours) of instructional time at CAI student station (scheduled individually to meet personal and professional needs and demands)

Registration fee or tuition (determined by local institution of higher education) depending upon amount of support from sponsoring organization

Purchase cost of textbook materials

6 WHAT DOES PENN STATE PROVIDE FOR CARE?

The CAI Laboratory at The Pennsylvania State University was established in 1964 as a research and development effort at the College of Education focusing on the preparation of CAI materials for the preparation of preservice and inservice teachers. A staff of curriculum specialists is maintained in the CAI Laboratory for the continuing technical support of and improvement of course offerings in Mobile Laboratories and on the University Park campus.

Two kinds of curriculum support are required for the maintenance of a sophisticated CAI system—programing and supplies. Computer programing changes must be made to reflect additional sources of information recently made available in new programing and instructional strategies. In addition, programing errors may be discovered in segments of the curricula written for specific conditions. Errors of this nature must be identified and corrected immediately in order to keep the instructional system operating at peak efficiency.

Each Mobile System must have an inventory of both on-line materials (image reels and audio tapes) and off-line materials (textbooks, handbooks, and tests). As a given CAI course goes through a formative evaluation, updating of off-line and on-line materials is required to reflect program content changes. These kinds of support will be provided by the CAI Laboratory at Penn State.

In summary, Penn State provides:

Mobile CAI Laboratory with sixteen student stations

On-site technical staff and operation of Mobile Laboratory

Curriculum updating, revision, and maintenance

Audience development brochure

Relocation of Mobile CAI Laboratory

7 HOW MUCH DOES CARE COST PER TEACHER?

Please contact one of the persons listed on page 15 to obtain detailed cost information for providing CARE courses for your teachers.

8 WHERE CAN YOU SEE CARE IN USE?

Penn State University has made CARE courses available to other institutions which have the necessary computer facilities and the student need for the curriculum. Visitors will be welcome at specific times by prearrangement. You can choose the most convenient site to see the CARE course being used. Write or phone in advance so that local arrangements can be made.

UNIVERSITY PARK, PENNSYLVANIA

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CAI Laboratory
201 Chambers Building
The Pennsylvania State University
University Park, Pennsylvania 16802
Phone: 814-865-0471

ELWYN, PENNSYLVANIA
July 1, 1973-October 31, 1973

Dr. Marvin Kivitz
Elwyn Institute
Elwyn, Pennsylvania 19063
Phone: 215-566-8800, Ext. 301

EDWARDSVILLE, ILLINOIS
July 23, 1973-August 31, 1973

Professor James Walker
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PHILADELPHIA, PENNSYLVANIA
November 1, 1973-December 21, 1973

Dr. Lafayette Powell
1801 Market Street
Philadelphia, Pennsylvania 19103
Phone: 215-448-3455

CHICAGO, ILLINOIS
February 20-23, 1973

American Association of Colleges
for Teacher Education,
Annual Meeting
Conrad Hilton Hotel

9 HOW DO YOU OBTAIN CARE IN YOUR AREA?

The educational and economic impacts of CARE are enhanced when a significant number of educators from a local school district participate in the program. The educators share common learning experiences with their colleagues, and can work as a team in their school to meet the educational needs of pupils. The costs of providing the CARE program are relatively fixed and therefore become lower per educator when large numbers of educators participate. We would suggest that educators who are interested in securing the CARE program for their teachers write to their state Director of Special Education and specify the need for such a program (e.g., the estimated number of educators from their school district who would participate), the extent of local interest and support that is available (approximately $2,500 per seven-week site), and interest in participating in the development of a state plan for sponsoring the CARE program. National coordination of the CARE program can be insured by sending a carbon copy of your letter of interest and intent to the following persons:

Dr. Edward Sontag
Coordinator of State Plans
Bureau of Education for the Handicapped
United States Office of Education
Regional Office Building
7th and D Streets
Washington, D.C. 20202

Dr. Earl B. Anderson, Executive Secretary
National Association of State Directors of Special Education
1201 16th Street, N.W.
Suite 301-C
Washington, D.C. 20036

Dr. Harold E. Mitzel
Associate Dean for Research
College of Education
277 Chambers Building
The Pennsylvania State University
University Park, Pennsylvania 16802

10 DO YOU WANT ADDITIONAL CARE INFORMATION?

ADDITIONAL REFERENCES

CARE trains teachers while they're on the job. Computer Assisted Instruction Laboratory, The Pennsylvania State University, University Park, March 1973.

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Mitzel, H.E. Computers and adaptive education. *American Education.* December 1970, pp. 23-26.

Mitzel, H.E. The potential contribution of computers to the reform of American education. *Alternative Futures in American Education,* Appendix 3 to hearings on H.R. 3606 and related bills to create a National Institute of Education before the Select Subcommittee on Education, January 1972.

(Reprints available from the CAI Laboratory at Penn State.)

SUPPORT SOURCES FOR THE CARE PROGRAM

U.S. Office of Education
National Center for the Improvement of Educational Systems
Bureau of Education for the Handicapped
The Pennsylvania State University
The Penn State Foundation

FOR FURTHER CARE INFORMATION, WRITE OR CALL:

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U Ed 3-781

Keith A. Hall, G. Phillip Cartwright, and Harold E. Mitzell

A TRIUMPH FOR CAI

A mobile computer-assisted instruction laboratory is providing inservice education – cheaply and effectively – for special education teachers of rural Pennsylvania at the rate of 1,000 a year.

In November, 1970, Pennsylvania State University inaugurated a new and sophisticated computer-mediated instructional technology in its inservice educational renewal program for teachers.* This program in special education is designed to assist regular classroom teachers in identifying the problems of handicapped children. The present schedule allows approximately 1,000 educators each year to complete the computer-mediated program in their rural Pennsylvania home communities.

Curriculum: Care-1

Professors G. Phillip Cartwright and Carol A. Cartwright led a team of university faculty members in developing the graduate-level course titled "Computer Assisted Renewal Education (CARE): Introduction to the Education of Exceptional Children." The course is appropriate for teachers at all grade levels, but is especially so for regular preschool and elementary school teachers who are *not* teachers of special classes. It is also designed to interest administrators; special class supervisors; school nurses; psychologists; aides; music, art, shop, and physical education specialists; special services personnel; and other school-related personnel, including day-care workers.

The CARE course teaches the characteristics of handicapped children, who are defined as children with atypical conditions or characteristics which have relevance for educational programming. Handicapped children include those who display deviations from normal cognitive, affective, or psychomotor behavior. Teachers are encouraged to look at children as individuals.

Although the use of traditional categories or labels is minimal, certain terms and concepts are taught to enhance communication with professionals in the field. Upon completion of the CAI course, participants are expected to: 1) know the characteristics of handicapped children and be aware of symptoms indicative of potential learning problems; 2) be able to screen children in regular classroom programs for deviations and determine the extent of the individual differences; 3) be able to select and use appropriate commercial and teacher-constructed appraisal and diagnostic procedures to obtain more precise information concerning the nature of the deviation; 4) be able to prepare individual profiles of each child's strengths and weaknesses on educationally relevant variables; 5) be able to evaluate the adequacy of the information in order to make appropriate decisions about referral to specialists; 6) be able to prepare adequate documentation of the case if the decision to refer is affirmative.

It is expected that the teachers who exhibit these competencies will systematically evaluate children's learning potential and formulate appropriate educational plans.

The teacher-students interact with the instructional program at computer stations (see photo, next page). In addition to the program of instruction stored in the computer, each student uses a textbook, handbook, set of materials for testing young children, and other appropriate teaching tools. When the student completes the course, he takes a 75-item final examination generated by the computer from a pool of 300 test questions. Each participant's performance is recorded on computer tape for summarization, marking, and course improvement by the authors. Teacher-students are awarded marks by the faculty member in charge of the course; they receive graduate level college credit for the course.

Facilities

To implement the program a custom-built, expandable van (see photo) was fitted with a computer and 15 student stations (IBM 1500 Instructional System). Each student station is equipped with a cathode ray tube (CRT) on which is displayed alphameric information plus animated illustrations. Student response components of the CRT include a typewriter-like keyboard and a light-sensitive pen. In addition to the CRT, each student station has a rear screen image projector which has a 1,000-frame reel of black and white or

*The mobile CAI laboratory is currently supported by Pennsylvania State University, the Penn State Foundation, and a grant from the Bureau of Educational Personnel Development, U.S. Office of Education. The development of the CARE course for computer presentation was funded by a grant from the Bureau of Education for the Handicapped, U.S. Office of Education.

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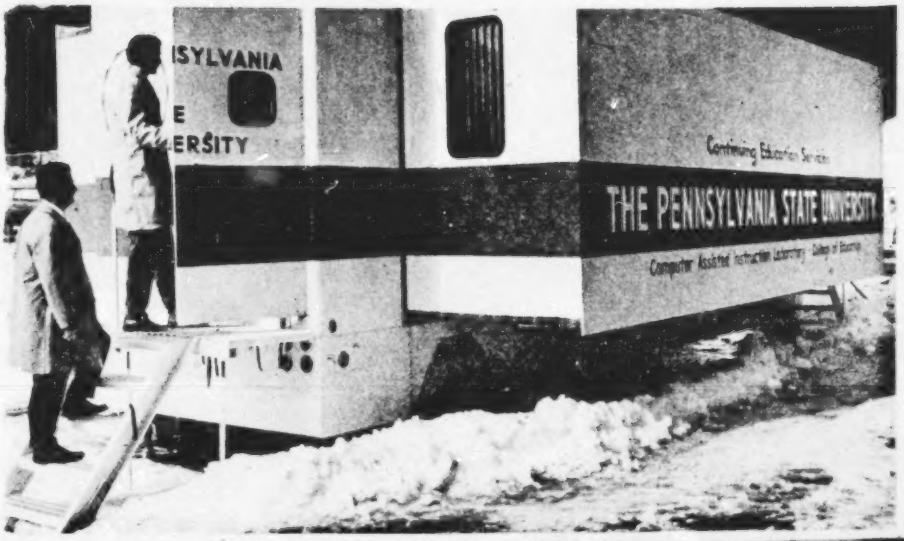

Left – Exterior view of the mobile CAI laboratory now being used by Penn State University to teach an introductory course in the education of exceptional children. After only two-thirds as many hours of instruction, inservice teachers achieved results 24% better than those of students in traditional classes on tests of cognitive gain.

Below – Interior of the CAI lab, showing some of the 15 student stations. Computer capacity is available to support double this number. Pennsylvania, a leader in the new emphasis on special education, finds the roving laboratory particularly useful in the inservice education of teachers in sparsely populated areas.

color microfilm, with each frame separately addressable by the computer. The third major display component is an audio device with separately addressable, prerecorded messages played through individual student headsets.

Implementation

On a prearranged schedule the mobile CAI laboratory is moved to a community school and connected to utilities. During the next seven weeks teachers and their supervisors schedule themselves for one- to three-hour sessions at the student stations on flexible and irregular schedules to fit the demands of their personal lives. During a seven-week period the mobile CAI laboratory will accommodate 125 to 150 students who enroll for a typical three-credit college-level course. The present mobile laboratory can provide instruction to more than 1,000 educators during a calendar year. However, the existing computer has sufficient power and capacity to support 15 additional student stations which would double the number of students served.

A field manager travels with the laboratory and hires (in the local community) a computer operator and two student proctors to help students with scheduling and station operations. The faculty member in charge of the course is available from time to time to talk with students and he can always be reached by telephone.

Curriculum/Student Evaluation

During the winter term, 1971, all students who were enrolled in CARE-1 were randomly assigned to either computer-assisted instruction or conventional instruction (CI) sections. The CAI group (N=27) received all instruction by means of the computer system and did not attend classes with the CI group. The CI group (N=87) received the conventional lecture-discussion method of instruction and met three days per week in 75-minute sessions for 10 weeks. All students, CAI and CI, were regular students enrolled for undergraduate or graduate credit. Both the CAI and the CI courses were designed to reach the same objectives. The instructor of the CI group was an author of the CAI course and helped plan the structure and the objectives of the CAI course.

The dependent variables were time and final examination scores based on 75 items. Results are shown in Table 1.

These data indicate that the group of students instructed by CAI obtained a mean score 24% higher on the final examination than did the CI students. Also, the CAI students completed the course in 12 hours less time (33%).

Alternative Problem Solutions

Other solutions to the problem of providing inservice training for teachers in sparsely populated areas might at first glance appear to be superior or less costly. The "traditional approach" to continuing education (i.e., sending faculty members into the field), although relatively inexpensive, suffers from several disadvantages: insufficient numbers of adequately trained professors willing to travel great distances to teach, widely variable quality of instruction, widely variable course content, and rigid scheduling for the students.

Intensive institutes and workshops at the university campus for selected attendees is a second alternative. Although institutes usually provide a higher quality of instruction than does off-campus instruction, they suffer from other disadvantages. Table 2 summarizes data from 12 institutes which met on the campus of Pennsylvania State University during parts of FY 1967 through

Photos: Pennsylvania State University College of Education

Table 1. Comparison of Final Examination Scores and Instructional Time for CAI and CI Students

Instructional Mode	*Final Examination Scores*			*Time in Hours**
	Mean	S.D.	t	
Computer-assisted instruction	65.69	4.68		25.21
Conventional instruction	52.78	5.89	11.65**	37.50

*CAI time is mean time per student and the time for conventional instruction is the total hours scheduled in lecture session for all students.

**This difference is statistically significant with $p < .001$.

1972, and two mobile CAI projects during parts of FY 1969, 1971 and 1972. The institutes provided the costs of instruction, stipends, and dependency allowances. The mobile CAI projects provided the costs of instruction (computer rental), relocation of mobile facilities, operating staff costs, instructional materials, and curriculum maintenance and revision.

The mobile CAI programs required only 52% of the total funds provided for these two kinds of programs, yet enrolled 82% of the total number of students and produced 66% of the student credit hours. The average cost per student in the mobile CAI programs was only 24% of the average cost per student in the traditional institute and only 56% of the average cost per student credit hour in the traditional institute.

It could be argued, of course, that the CAI renewal programs would not be possible without considerable expense in curriculum development. It is not appropriate, however, to include development costs in a cost comparison if similar costs are excluded from the total for traditional institutes. The curriculum development costs in a traditional institute occur in the form of undergraduate, graduate, and postgraduate training supplied by faculty members conducting the institute. Their salaries could be considered only the "operational costs" of implementing the curriculum, the same as computer rental and other expenses are the "operational costs" of providing a computer-assisted renewal education program.

Of more importance than costs is the comparative impact of the two methods. CAI provided instruction for 1,869 participants, whereas the institutes provided an educational experience for only 416 participants. Further, the characteristics of the participants are different. The on-campus institutes are selective and provide education only to those who meet certain selection criteria and who are able to reside near the university for the duration of the institute. In contrast, the CAI programs have been available on an open-admission basis within 25 miles of each participant's home. The typical participant, in the most recent mobile CAI project, is female (69%), less than 30 years old (61%), and holds a bachelor's degree as the highest degree earned (59%). She is employed by a public school system (92%) as a teacher (58%) in grades K-6 (51%). She has fewer than four years of service in education (58%) and is taking the course to improve her skills as a teacher (75%) rather than seeking a change to a different job. Her school is in a rural community or small town (59%) and she is teaching the general population (79%) as opposed to teaching in a poverty area, although she and 67% of her colleagues teach in a community where from 10% to 40% of the pupils are from a poverty area. The typical teacher is probably also a housewife with family responsibilities, unable to leave her community for extended study at the university. Taking a high-quality, flexible program to her home community is perhaps the only way to upgrade her teaching skills.

Student Benefits

Educators who have taken the course report a high degree of satisfaction with the curriculum and the instructional method. Average increases in subject matter achievement on the part of participants have been substantial. Students taught through CAI have also realized a considerable saving in time when compared with students taught in the conventional manner. The major advantage of this program is that it brings an individually adaptive quality course of instruction on a timely subject to groups of education practitioners who would not otherwise get the benefit of retraining and upgrading. As a byproduct, experience in the mobile CAI laboratory makes teachers more aware of technological advances in education than they presently are. This experience should help dispel some of the mystery and fear of computers that many people possess. □

Table 2. Comparison of Costs, Number of Students, Student Credit Hours Produced, Average Cost per Student Credit Hour for Traditional Institutes and Mobile CAI

	Traditional Institutes	*Mobile CAI*	*Total*
Total costs	$534,310	$577,444	$1,111,754
Total numbers of students	416	1,869	2,285
Total student credit hours produced	2,706	5,220	7,926
Total average cost per student	$1,284	$309	$796
Total average cost per student credit hour	$197	$111	$154

Education for Paraprofessionals

≫ A year-long study by the Genesee Intermediate School District in Genesee County, Michigan, has resulted in a countywide paraprofessional education program. Begun as an experiment in paraprofessional training, the study caused the creation of an off-campus associate degree program in cooperation with local colleges. Genesee County paraprofessionals may begin by participating in countywide noncollege seminars and advance toward a bachelor's degree.

A certification and development committee recommended several other steps as a result of the study: a review of current paraprofessional literature and training materials, creation of a paraprofessional library, development of a seminar work-experience program, and design of a special off-campus college training program. Copies of the *Integrated Study Report* or the *Paraprofessional Handbook for Local School Districts* may be ordered from Project CHANGE, Genesee Intermediate School District, 2413 West Maple Avenue, Flint, Michigan.

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The Pennsylvania State University
Computer Assisted Instruction Laboratory

CARE I

Introduction to Exceptional Children
Early Identification of Handicapped Children

Catalog Description. The social, psychological, and physiological aspects of the mentally retarded, gifted, and the visually, aurally, physically, emotionally, and neurologically handicapped. (Penn State Course Number: EEC 400; graduate or undergraduate credit; 3 semster credits or 4 quarter credits.)

Course Objectives

The course is designed to help school-related personnel carry out two vital responsibilities:

1. Identify young children with problems that might interfere with the educational process.
2. Provide early intervention for the remediation of the children's problems.

At the completion of the course, the student is expected to:

1. Specify the characteristics of handicapped children and describe the symptoms which are indicative of potential learning problems.
2. Screen all children in regular classroom programs for deviations and determine the extent of the inter-individual differences.
3. Select and use for those children with deviations appropriate commercial and teacher constructed appraisal and diagnostic procedures in order to obtain more precise information on the nature of the deviation.
4. Synthesize information by preparing individual profiles of each child's strengths and weaknesses on educationally relevant variables.
5. Evaluate the adequacy of the information available in order to make appropriate decisions about referral to specialists.
6. Prepare adequate documentation for the case if the decision to refer is affirmative.

Content Outline

I. Overview
   - A. Philosophy of CARE I
     1. Importance of concern for observable behavior
     2. Stress on detailed analysis of individual differences in children
   - B. Educational and legal definitions of handicapped children
   - C. Decision process for evaluating children and making appropriate modifications of educational programs

II. Educational Information Processing Model
   - A. Purposes
   - B. Model
     1. Input system
     2. Information processing unit
     3. Output system
     4. Monitor and feedback
   - C. Inferred and observed problems

III. Interrelationships of Handicaps
- A. Major points
  - 1. Identical behaviors may be found in children with different disabilities
  - 2. The same disability may produce different behaviors in different children
  - 3. Handicapped children often have related handicaps or problems
- B. Examples to illustrate points

IV. Decision Process
- A. Components
  - 1. Survey
  - 2. Diagnosis
  - 3. Modification of educational program or referral to a specialist

V. Gathering Information about Children
- A. Quantitative and qualitative information
- B. Observable behavior
- C. Collecting behavioral information
- D. Evaluation in the teaching-learning process
- E. Selecting appropriate evaluation procedures
  - 1. Tests
  - 2. Observational techniques
  - 3. Peer appraisal and self-report techniques
  - 4. Tests used for the evaluation of handicapped children

VI. Reliability, Validity, and Usability
- A. Reliability
  - 1. Test-retest
  - 2. Equivalent forms
  - 3. Inter-scores
  - 4. Intra-scores
- B. Validity
  - 1. Content
  - 2. Predictive
- C. Relationship between reliability and validity
- D. Usability

VII. Individual Differences and Normality
- A. Understanding scores
- B. Interpretation of scores
  - 1. Bar graphs
  - 2. Frequency curves
  - 3. Continuous and deviate variation
  - 4. Histogram
  - 5. Normal curve of error
  - 6. Normal deviate
  - 7. Relationship of percentile ranks to normal deviate scale
  - 8. T-scores
  - 9. Stanines
  - 10. Grade level equivalent scores

VIII Profiles of Individual Differences
- A. Constructing a Profile
- B. Inter-individual differences
- C. Intra-individual differences

IX Screening tests
- A. Types of screening instruments
- B. *Denver Developmental Screening Test*
- C. *First Grade Screening Test*
- D. *Metropolitan Readiness Test*

X. Mental Retardation
- A. Definition
  - 1. Subaverage intellectual functioning
  - 2. Developmental period
  - 3. Adaptive behavior
- B. A commonly used classification scheme
  - 1. Custodial mentally retarded
  - 2. Trainable mentally retarded
  - 3. Educable mentally retarded
- C. Identification and diagnosis of mental retardation
- D. Intellectual functioning of mentally retarded children
- E. Developmental characteristics of mentally retarded children
- F. Learning characteristics of mentally retarded children
- G. Social adaptibility of retarded children

XI. The Disadvantaged
- A. Definition of disadvantaged
  - 1. Distinguishing factors
  - 2. Two important generalizations
    - a. Heterogeneity of group
    - b. Environmental influence
- B. Nature of intelligence tests
- C. Impact of cultural subgroups
- D. Learning characteristics of the disadvantaged
- E. Language characteristics of the disadvantaged

XII. Emotional Disturbance
- A. Identification of disturbed children
  - 1. Inappropriate behavior
  - 2. Bizarre behavior
- B. Speech and language problems
  - 1. Delayed speech
  - 2. Stuttering
  - 3. Excessive verbalization
  - 4. Garbled speech
  - 5. Echoing and rhyming
  - 6. Volume of speech
  - 7. Inability to maintain a conversation
- C. Characteristics of a good observational record

XIII Visual Problems

A. Professional persons who work with children who have visual problems
   1. Ophthalmologist
   2. Optometrist
   3. Optician
B. Parts of the eye
C. Some common visual problems
D. Some characteristics of children with visual problems
   1. Signs of possible eye problems
   2. Learning and other school related traits
E. Additional remarks about visually impaired children
F. Vision screening
   1. Tests requiring special materials
   2. Tests not requiring special materials

XIV. Hearing problems

A. Definitions
   1. Deafness
   2. Hearing impairment
B. Dimensions of hearing ability
   1. Sensitivity
   2. Discrimination
   3. Frequency range
C. Threshold of hearing
D. Pure tone audiometer
E. The ear and hearing
   1. Structure of the ear mechanism
   2. Types of hearing loss
F. What should be done about hearing problems
   1. Case finding
   2. Screening
   3. Referral
   4. Medical treatment
G. Hearing aids and auditory training
H. Other communication channels
I. Special academic tutoring

XV. Speech Problems

A. Communication and language
B. The process of speech
   1. Below the eyebrows
   2. Above the eyebrows
C. Speech problems
   1. Articulation
   2. Rhythm
   3. Voice
   4. Language
D. Comments for teachers

XVI. Motor, Physical, and Health Problems
- A. Cerebral Palsy
  - 1. Types
  - 2. Identification
  - 3. Associated disorders
- B. Brain injury
  - 1. Terminology
  - 2. Some behavioral characteristics
- C. Epilepsy
  - 1. Grand Mal
  - 2. Petit Mal
  - 3. Treatment
- D. Chronic health problems

XVII. Drug Abuse
- A. Dependency
- B. Addiction
- C. Tolerance
- D. Withdrawal
- E. Categories of drugs
  - 1. Stimulants
  - 2. Depressants
  - 3. Hallucinogens
  - 4. Narcotics
- F. Federal drug control legislation
- G. Suggestions for teachers

XVIII. Learning Disability
- A. Perception
- B. Perceptual problems
  - 1. Visual discrimination
  - 2. Visual memory
  - 3. Auditory discrimination
  - 4. Auditory memory
- C. Characteristics of learning disabled children
- D. Expected and actual grade achievement
- E. Expressive/ receptive language

XIX. Documentation and Referral Procedures
- A. Teacher referral statements
- B. Behavior modification techniques
  - 1. Rewards
  - 2. Determining reward preferences
  - 3. Reinforcement schedules
  - 4. Shaping
  - 5. Eliminating undesirable behaviors
  - 6. Key principles and some cautions
- C. Examples of referral statements
- D. Documentation

XX. Case Histories
- A. Application of decision model for identifying children with potential learning problems

XXI. Summary
- A. Decision process
- B. Information processing model
- C. Behavior
- D. Individualization of instruction
- E. Data gathering and documentation

Course Length

CARE I requires approximately 30 hours of work at a student station. The course is made up of 23 chapters, 2 quizzes, and a final exam.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

CARE 2/3

Diagnostic Teaching of Preschool and Primary Children

Catalog Description: Educational adjustments for exceptional children; group and individual management techniques applicable to the control of various types of behaviors which are characteristics of exceptional persons. (Penn State course number, EEC 401), graduate or undergraduate credit; 3 semester credits or 4 quarter credits.

Course Objectives

At the completion of either CARE 2 or CARE 3 individuals should be able to modify children's educational experiences by doing the following:

1. Identify characteristics of individual children that indicate special teaching or management procedures are required;
2. Specify relevant educational objectives for individual children;
3. Select techniques for effective classroom management;
4. Choose and use specialized teaching strategies for reaching specific objectives for children with varying behavioral and learning characteristics;
5. Choose and use special materials in association with specific strategies;
6. Identify and use appropriate educational procedures;
7. Draw upon existing sources of information regarding specialized strategies and materials; and,
8. Consult with available resource persons for assistance when needed.

Content Outline

Part I - Introduction

Chapter 1. Introduction to CARE 2/3
- A. Purpose
  1. Describe CAI
  2. Describe mastery learning via CAI
  3. Describe the CARE series and indicate the place of CARE 2/3 in the series
- B. Mainstreaming children with problems

Chapter 2 - Summary of CARE 1, Identification of Handicapping Conditions in Children
- A. Information processing
- B. Importance of observable behaviors

Chapter 3 - Diagnostic Teaching Model
- A. Purpose of diagnostic teaching model
  1. Prevent learning problems
  2. Correct existing problems
  3. Enhance learning assets

B. Steps in diagnostic teaching model

Part II - Child Development

Chapter 4. Important Concepts of Child Development

A. Development as change in behavior
   1. Process
   2. Product
B. Developmental ideas
   1. Differentiation
   2. Individual differences
   3. Socialization

Chapter 5 - Motor Development

A. Characteristics of motor behavior
   1. Muscle movement
   2. Conscious control
B. Types of motor skills
   1. Gross
   2. Fine
C. Development of basic skills during preschool years
D. Motor achievements of primary years
   1. Application of fundamental skills to new situations
   2. Increase of strength and speed

Chapter 6 - Intellectual Development

A. Concept of intelligence
B. Perception
C. Perceptual organization
D. Symbolic organization

Chapter 7 - Social Emotional Development

A. Stages of play
   1. Solitary
   2. Parallel
   3. Associative
   4. Cooperative
B. Acceptance and regression
C. Aggression
D. Sex differences
E. Self concept
F. Parents and peers as influences on socialization

Chapter 8 - Language Development

A. Language defined
B. Important aspects of language development
   1. Speech sounds
   2. Vocabulary
   3. Grammar
C. Characteristics of language behavior of preschool and primary children

Part III - Identifying Relevant Characteristics of Children
Chapter 9. Educational Evaluation

A. Establishment of criteria
   1. Proficiency
   2. Level
B. Selecting procedure
   1. Validity
   2. Reliability
   3. Enabling behaviors
   4. Efficiency
C. Collection of evaluation data
D. Making judgments

Chapter 10 - Important Principles of Educational Diagnosis

A. Observation and recording of behavior
   1. Informal teacher-made tests
   2. Informal observational schedules
   3. Standardized educational tests
B. Detection of repeated pattern of failure
C. Factors influencing poor school learning
   1. Motivation
   2. Energy level
   3. Sensory limitations
   4. Appropriations of task
   5. Processing difficulties

Chapter 11 - Systematic Observation

A. Use of categories for observing behaviors
B. Coding behavior
   1. Reliability of observers
   2. Parsimony
   3. Validity
C. Observation in diagnostic teaching model
   1. Diagnose relevant characteristics of children
   2. Determine the achievement of objectives

Part IV - Specification of Goals and Objectives
Chapter 12. Instructional Objectives

A. Components of instructional objectives
   1. Statement of conditions
   2. Terminal behavior
   3. Criteria for minimal acceptable performance
B. Value in use of instructional objectives
   1. Greater efficiency in planning and evaluating instruction
   2. Opportunity for students to plan and evaluate their own learning
C. Steps for teacher to follow in using instructional objectives
   1. Plan lesson to teach class about instructional objectives
   2. Teach a lesson as usual and then with objectives made explicitly clear to children. Measure time to complete each lesson and quality of learning.
   3. Begin using behavioral objectives daily in all subject areas
   4. Test children on objectives. Evaluate student performance. Evaluate teaching performance.

Chapter 13 - Task Analysis

A. Elements in task analysis
   1. Breaking down of tasks into component parts to identify skills involved in performance of task
   2. Identification of prerequisite skills
B. Sequencing instruction
   1. Determination of enroute or enabling behaviors
   2. Determination of entry level skills
   3. Determination of child's readiness (entry level skills and enroute behaviors) for a task
C. Relating general goals and behavioral objectives

Part V - Instructional Procedures

Chapter 14. Factors to be Considered in Planning Instruction

A. Task
B. Characteristics of child
   1. Motivation
   2. Energy level
   3. Sensory limitation
   4. Processing difficulties
C. Instructional activities
   1. Lesson presentation
   2. Practice
   3. Classroom control activities
   4. Evaluation procedures
D. Instructional materials
E. Administrative details

Chapter 15 - Behavior Modification

A. Uses of consequences of behavior
   1. Strengthen desired behavior
   2. Shape new behaviors
   3. Decrease undesired behaviors
B. Basic steps
   1. Observe and take baseline.
   2. Specify a target behavior including criterion.
   3. Select reinforcers.
   4. Implement selected strategy.
   5. Evaluate change that occurs.
   6. Establish reinforcement schedule.
C. Reinforcers as events following a behavior that increase or maintain a behavior
   1. Attention or social reinforcers
   2. Food
   3. Knowledge of results
   4. Activities
   5. Token economies
D. Behavior change program for beginners
E. Counting behaviors

Chapter 16 - Open Education
- A. Philosophy of open education
  - 1. Opening as a process
    - a. Flexible objectives
    - b. Lack or de-emphasis of peer competition
    - c. Multi-age groupings
    - d. Teacher's attitudes toward mistakes
  - 2. Education and its source in society
- B. Open classroom transactions
- C. Integrated day
- D. Role of curriculum
- E. Role of teacher
- F. Role of child

Chapter 17 - Comparison of Behavior Modification and Open Education
- A. Dimensions for comparison
  - 1. Role of child
  - 2. Objectives
  - 3. Reinforcement
  - 4. Role of teacher
  - 5. Classroom arrangement
  - 6. Evaluation
- B. Student comparison checklist

Part VI - Selection and Retrieval of Instructional Procedures and Materials

Chapter 18. National Network of Learning Resource Centers*
- A. Information retrieval systems
- B. The Educational Resources Information Center (ERIC): A centralized information retrieval system
  - 1. Sixteen clearinghouses
  - 2. Clearinghouse operations
  - 3. ERIC publications
    - a. Resources in Education (RIE)
    - b. Current Index to Journals in Education (CIJE)
  - 4. Use of ERIC via the Thesaurus of ERIC Descriptors
- C. Overview of additional information retrieval systems

Chapter 19 - Computer-Based Resource Units (CBRU)
- A. Resource units as broad pools of information for teachers to adapt
- B. Teaching units
- C. Requesting CBRU resource units using descriptors
- D. CBRU Resource Guide printouts

XX. Chapter 20 - Prescriptive Materials Retrieval System (PMR System)
- A. Purpose of PMR System
  - 1. Identify materials fitting precise criteria
  - 2. Retrieve descriptive analysis sheets for materials matching criteria
- B. Use of PMR Select-Ed Educational Descriptor Dictionary
- C. Locating materials

* In the first edition of the CARE 2/3 Handbook, this chapter is entitled the National Network of Instructional Materials and Regional Media Centers. As of September 1, 1974, the network became known as the NCEMMH/ALRC network.

Chapter 21 - Fountain Valley Teacher Support System in Reading (FVTSS)

A. Purpose of FVTSS
   1. Diagnose specific learning problems in reading.
   2. Identify materials for teaching specific reading skills.
B. Components of system in bit form
   1. Teacher's Manual
   2. Pupil Progress Profile
   3. Tests on cassette tapes
   4. Self-scoring work sheets
   5. Teaching alternatives supplement
C. Using the FVTSS in reading

Part VII - Application of the Diagnostic Teaching Model

Chapter 22. Language Development

A. Linguistic descriptions of language
   1. Phonology
   2. Morphology
   3. Syntax
      a. Awareness of major word classes
      b. Knowledge of basic sentence types
      c. Knowledge of basic grammatical relationships
      d. Ability to substitute
      e. Knowledge of transformations
   4. Semantics competence
      a. Vocabulary
      b. Definitional ability
      c. Paraphrasing
      d. Evaluating truth value
      e. Detecting ambiguities and absurdities
B. Assessing children's language growth
   1. Impressionistic assessment
      a. Verbal functioning
      b. Receptive language
      c. Expressive language
      d. Quantity and intelligibility
   2. Analysis of tape recorded sample of child's speech
   3. Standardized tests
   4. Informal procedures
   5. Teaching children from nonstandard speaking backgrounds
   6. Reading readiness
C. Remedial objectives and activities
D. Sources of language-related research and teaching materials

Chapter 23 - Reading

A. Reading defined
B. Reading readiness
   1. Visual skills
   2. Listening
   3. Speech and language
   4. Social and emotional development
   5. Intellectual interest in reading

C. Reading skill areas
   1. Vocabulary
   2. Comprehension
D. Diagnostic teaching of reading

Chapter 24 - Mathematics
A. Goals of comprehensive mathematics programs
   1. Develop mathematical concepts and quantitative vocabulary.
   2. Teach computational skills.
   3. Provide opportunities for problem solving.
B. Distinction between concepts and skills
C. Preprimary level emphases
   1. Classification
   2. Seriation
   3. Spatial relationships
   4. Measurement
D. Primary level emphases
   1. Computational skills
   2. Operations on whole numbers
E. Diagnostic approaches in mathematics
   1. Standardized tests
   2. Teacher-made tests
   3. Observations
   4. Clinical interviews
F. Some specific mathematical programs

Chapter 25 - Social-Emotional Development
A. Underlying principles
   1. Classroom as a laboratory for social-emotional development
   2. Importance of child's feelings about himself, his peers, and his teachers
B. Role of teacher as facilitator of social-emotional development
C. Characteristics of teacher, environment, and learner which facilitate the teaching-learning process
D. Procedures which facilitate social-emotional development
   1. Puppets
   2. Dramatic plays
   3. Role playing or sociodrama
   4. Discussion groups
E. Social-Emotional Problems

Chapter 26 - Motor Development
A. Mini-decision model for identifying gross motor problems
B. Tables of average development
   1. Basic skills
   2. Major motor achievement of primary years: speed and strength
C. Selecting strategies
D. Evaluation
   1. Informal evaluation during remediation
   2. Testing performance against objectives
   3. Comparing performance with peers
E. Movement Pattern Checklists
   1. Walking
   2. Running

3. Kicking
4. Jumping
5. Hopping
6. Skipping
7. Throwing

Part VIII - Resources

Chapter 27. Using Resource Persons: Roles, Referral Statements, and Follow Up

A. Resource persons
   1. Persons serving as resources
   2. Factors influencing use of resource persons
      a. Availability of person
      b. Specific information needed
      c. Time
B. Referral and follow-up procedures
   1. Teacher Referral Statement for formal referral
   2. What to do during referral period

Chapter 28 - Parent Education

A. Parents as teachers
   1. Super mother
   2. Smothering mother
   3. Almost mother
   4. Overwhelmed mother
   5. Zoo-keeper mother
B. Parent involvement in programs for young children
   1. Deficit model
   2. Schools as failure model
   3. Cultural difference model
   4. Social structure model
C. Roles parents can play
D. Organized parent education programs
   1. Parents as bystanders
   2. Parents as learners
   3. Parents as teachers
   4. Parents as aides
   5. Parents as policy makers

Part IX - Day Care

Chapter 29. Day Care Theory

A. History of child care movement
   1. Public child care programs
   2. Private early education programs
   3. Early philosophers and founders of early childhood education
      a. Aristotle
      b. Comenius
      c. Rousseau
      d. Pestalozzi
      e. Froebel
B. Emergence of developmental day care
C. Descriptions of early childhood education programs

Chapter 30 - Day Care Application
This case study exercise provides practice in:

1. Designing a classroom with areas for block building, books, dramatic play, and quiet activity.
2. Planning appropriate activities for three children in each of the classroom areas.
3. Handling administrative duties including scheduling, ordering supplies, and meal preparations.

An extensive list of references follow each chapter in the *Handbook*.

CARE 2/3 takes approximately 30-35 hours to complete, depending upon the student's use of the option to omit certain chapters if performance on pretests meets criteria.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

CARE 4

Education of Visually Handicapped Children

Catalog description: Characteristics of the visually handicapped; teaching strategies; selection and construction of instructional materials; environmental arrangements; evaluation procedures (Penn State course number: EEC 460; graduate or undergraduate credits; 1 semester credit or 2 quarter credits.)

Course Objectives

At the conclusion of this course, the student is expected to:

1. Identify educationally relevant characteristics of visually handicapped children.
2. Construct instructional objectives for these children.
3. Select suitable media and materials for instruction.
4. Arrange proper classroom environmental conditions.
5. Design instructional procedures to facilitate learning.
6. Utilize appropriate techniques for evaluating performance.

Content Outline

I. Introduction
   - A. Recognition of student's prior information and attitudes
   - B. Sensory input channels
     1. Visual
     2. Auditory
     3. Tactile
     4. Gustatory
   - C. Organizational patterns for instruction - continuum of service
     1. Kinds
     2. History
     3. Trends
     4. Pennsylvania programs as examples
   - D. Objectives of course

II. Identification of Visually Handicapped Children
   - A. Clinical information
     1. Visual acuity
     2. Visual field
   - B. Functional information
     1. Acuity - near and distant
     2. Capacity
     3. Versatility

III. Collection of Educationally Relevant Information about Visually Handicapped Children
- A. Kinds of information
  - 1. Family
  - 2. Diagnosis
  - 3. Visual acuity
  - 4. Visual functioning
- B. Educationally relevant information
- C. General characteristics of partially seeing school children
  - 1. Average intellectual abilities
  - 2. Average age for grade placement
  - 3. Below grade level in academic achievement

IV. The Process of Seeing
- A. Components of the seeing process.
  - 1. Light
  - 2. Eye
  - 3. Brain
  - 4. Visual target
- B. Human eye

V. Common Causes of Poor Vision
- A. Refractive errors
- B. Diseases
- C. Injuries
- D. Tumors
- E. Poisonings
- F. Ambiyopia ex anopsia
- G. Prenatal causes
- H. Unknown to science

VI. Construction of Instructional Objectives
- A. Instructional objectives: kinds and components
- B. Bases for determination
  - 1. Observation of behavior
  - 2. Curriculum
  - 3. Special needs of students

VII. Selection of Appropriate Instructional Materials
- A. Bases for Selection
  - 1. Learning task
  - 2. Available sensory input channels
  - 3. Level of physical and academic functioning
- B. Special kinds for visually handicapped
  - 1. Books and alternatives
  - 2. Equipment
  - 3. Sources of instructional materials

C. Criteria for selection of particular items
   1. Durability
   2. Size
   3. Color
   4. Texture
   5. Safety
   6. Adaptability
   7. Complexity
   8. Relative cost
   9. Results reported by others

VIII. Arrangement of Appropriate Classroom Environmental Conditions
   A. Classroom environmental factors affecting learning
      1. Light
      2. Temperature
      3. Noise level
      4. Furniture
      5. Space
      6. Equipment
      7. Learning task
   B. Factors to consider in arranging conditions for a given student (application)

IX. Design of Instructional Procedures. (an application of rules and principles covered above.)

X. Utilization of Appropriate Techniques for Evaluating Performance
   A. Testing and assessment
   B. Materials
   C. Procedures for administration
   D. Use of results

XI. Summary
   A. Review of purpose
   B. Main points
      1. Learner behavior
      2. Student characteristics
      3. Attitudes.
   C. Preparation for final exam

Course Length

CARE 4 requires approximately 8 to 10 hours of work at a student station. The course is made up of 10 chapters and the final exam.

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Computer Assisted Renewal Education

CARE is a set of courses oriented toward the interests and needs of the professional teacher. Each course offers undergraduate and graduate credits, but none requires prerequisite coursework.

CARE offers four courses, each of particular interest to preschool and elementary teachers, with impressive potential for developing skills which will enable the teacher to meet the educational needs of mildly handicapped children placed in the regular classroom. Such placements are expected to become increasingly common as a growing number of states pass "mainstreaming" mandates. The four courses are:

CARE 1 The Early Identification of Handicapped Children

CARE 2 Diagnostic and Prescriptive Teaching of
CARE 3 Preschool and Primary Children

CARE 4 Education of Visually Handicapped Children

CARE courses are unique in that each is offered in an individualized, multimedia instructional environment. The student works at his own pace with a personal instructional system of textbooks, audio-recordings, video presentations and color slide projections, all of which are organized and integrated into a dynamic learning environment.

CARE courses are especially convenient for the busy teacher. During each week of the course the student can schedule time for personal instruction. Thus, morning, evening or afternoon sessions on any day of the week can be arranged, and each week can be scheduled differently to accommodate the teacher's changing activities.

CARE offers still another benefit to the busy teacher. All instruction and coursework occur in the CARE instructional setting. There are no time consuming projects, or reports, or term papers. In addition, the courses take less time than conventional college classroom approaches. Research has revealed, for example, that students participating in the CARE 1 course finished the course 33% faster, and with achievement scores 28% higher than those achieved by students in a conventional classroom setting.

DIVISION OF SPECIAL EDUCATION OFFICE OF SUPERINTENDENT OF PUBLIC INSTRUCTIONS

WESTERN WASHINGTON STATE COLLEGE

INTERMEDIATE SCHOOL DISTRICT 112

THE PENNSYLVANIA STATE UNIVERSITY

THE BUREAU OF EDUCATION FOR THE HANDICAPPED, U. S. O. E.

are sponsoring a series of college credit, time-flexible, individually adaptive and scheduled courses

		Quarter Credits	Fees	Books*	Total
CARE 1	Ed 462b	4	$60.00	$13.50	$73.50
CARE 2/3	Ed 462c	4	$60.00	$ 4.25	$64.25
CARE 4	Ed 462d	2	$30.00	$ 4.85	$34.85

*Books are required for each student.

FORMAL REGISTRATION will take place at:

IDS 112
910 N.E. Minnehaha Street

May 3, 1975	9:00 a.m.	4:00 p.m.
May 5 & 6, 1975	3:30 p.m.	8:00 p.m.

Following registration, students will inspect the CAI van, pick up their text material and schedule their first instructional session.

PRE REGISTRATION FORM

Name _____
Phone _____

Home Address _____

Employment Address _____
Phone _____

____Graduate or ____Undergraduate credit.

Indicate the times you are available for instruction.

	Mondays-Friday	Saturday	Sunday
3:30 p.m. – 9:00 p.m.	_____	_____	_____
8:30 a.m. – 4:00 p.m.	_____	_____	_____
7:00 a.m. – 11:00 p.m.	_____	_____	_____

This preregistration form and fees must be received by:

April 14, 1975

Return this preregistration form and fees to:

Ms. Paulette Wiege
Intermediate School District 112
910 N.E. Minnehaha Street
Vancouver, Washington 98665

Make checks payable to:

Western Washington State College

Call Ms. Paulette Wiege (694-8593) ISD 112 for further information.

In Compliance with Title VI of the Civil Rights Act of 1964

"No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

CARE 1 - EARLY IDENTIFICATION OF HANDICAPPED CHILDREN

(Penn State's EEC 400)

1. Handbook/Textbook - *Computer Assisted Remedial Education: Early Identification of Handicapped Children* (R-36). Cartwright and Cartwright, 1970. $3.70

   Available from: The Pennsylvania State University
   Computer Assisted Instruction Laboratory
   201 Chambers Building
   University Park, Pennsylvania 16802
   Phone: 814/865-0471

2. *Denver Developmental Screening Test (DDST) Manual*, 1970 Edition, $3.75 (Note: Scoring Sheets for use with the DDST will be made available free by Penn State to students).

   Available from: Ladoca Project & Publishing Foundation, Incorporated
   East 51st Street and Lincoln Street
   Denver, Colorado 80216
   Phone: 303/222-3605

3. *First Grade Screening Test (FGST)*, Specimen Set containing one each boys' and girls' test booklets and manuals), $3.80

   Available from: American Guidance Service, Incorporated
   Publishers Building
   Circle Pines, Minnesota 55014
   Phone: 612/786-4343

4. *Metropolitan Readiness Tests* (Specimen Set), $2.05

   Available from: Harcourt, Brace and Jovanovich
   757 Third Avenue
   New York, New York 10017

09/17/74

CARE 2/3 - DIAGNOSTIC TEACHING OF PRESCHOOL
AND PRIMARY CHILDREN
(Penn State's EEC 401)

1. Handbook/Textbook - *Diagnostic Teaching of Preschool and Primary Children*, (R-54), Cartwright, et. al. 1973. $4.25

   Available from: The Pennsylvania State University
   Computer Assisted Instruction Laboratory
   201 Chambers Building
   University Park, Pennsylvania 16802
   Phone: 814/865-0471

2. *Fountain Valley Teacher Support System in Reading; Teacher In-Service Manual*, Zweig, 1973, $2.60

   Available from: The Pennsylvania State University
   Computer Assisted Instruction Laboratory
   201 Chambers Building
   University Park, Pennsylvania 16802
   Phone: 814/865-0471

3. *The Select-Ed Educational Descriptor Dictionary For Prescriptive Materials Retrieval System*, Select-Ed, 1973. Will be made available free, by Penn State, to students.

   Available from: The Pennsylvania State University
   Computer Assisted Instruction Laboratory
   201 Chambers Building
   University Park, Pennsylvania 16802
   Phone: 814/865-0471

09/17/74

CARE 4 - EDUCATION OF VISUALLY HANDICAPPED CHILDREN

(Penn State's EEC 460)

1. Handbook/Textbook - *Computer Assisted Remedial Education of Visually Handicapped Children*, Ward and Peabody, 1972. $2.40

   Available from: The Pennsylvania State University
   Computer Assisted Instruction Laboratory
   201 Chambers Building
   University Park, Pennsylvania 16802
   Phone: 814/865-0471

2. *Helping The Partially Seeing Child In The Regular Classroom*, $0.25.

   Available from: The Pennsylvania Association For The Blind
   Pittsburgh Branch
   308 South Craig Street
   Pittsburgh, Pennsylvania 15213
   Phone: 412/682-5600

3. *Teaching About Vision*, $2.00.

   Available from: The National Society For Prevention of Blindness, Inc.
   79 Madison Avenue
   New York, New York 10016

09/17/74

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Mobile CAI Laboratory
Typical Operational and Utilization Schedules*

Days	Hours	Hours/Week
Monday - Friday	3:00 P.M. - 10:00 P.M.	35
Saturday	9:00 A.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		55

Days	Hours	Hours/Week
Monday - Friday	1:00 P.M. - 10:00 P.M.	45
Saturday	9:00 P.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		65

Days	Hours	Hours/Week
Monday - Friday	10:00 A.M. - 10:00 P.M.	60
Saturday	9:00 A.M. - 7:00 P.M.	10
Sunday	1:00 P.M. - 11:00 P.M.	10
		80

* Final operational schedule is adjusted to meet the needs of the students.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

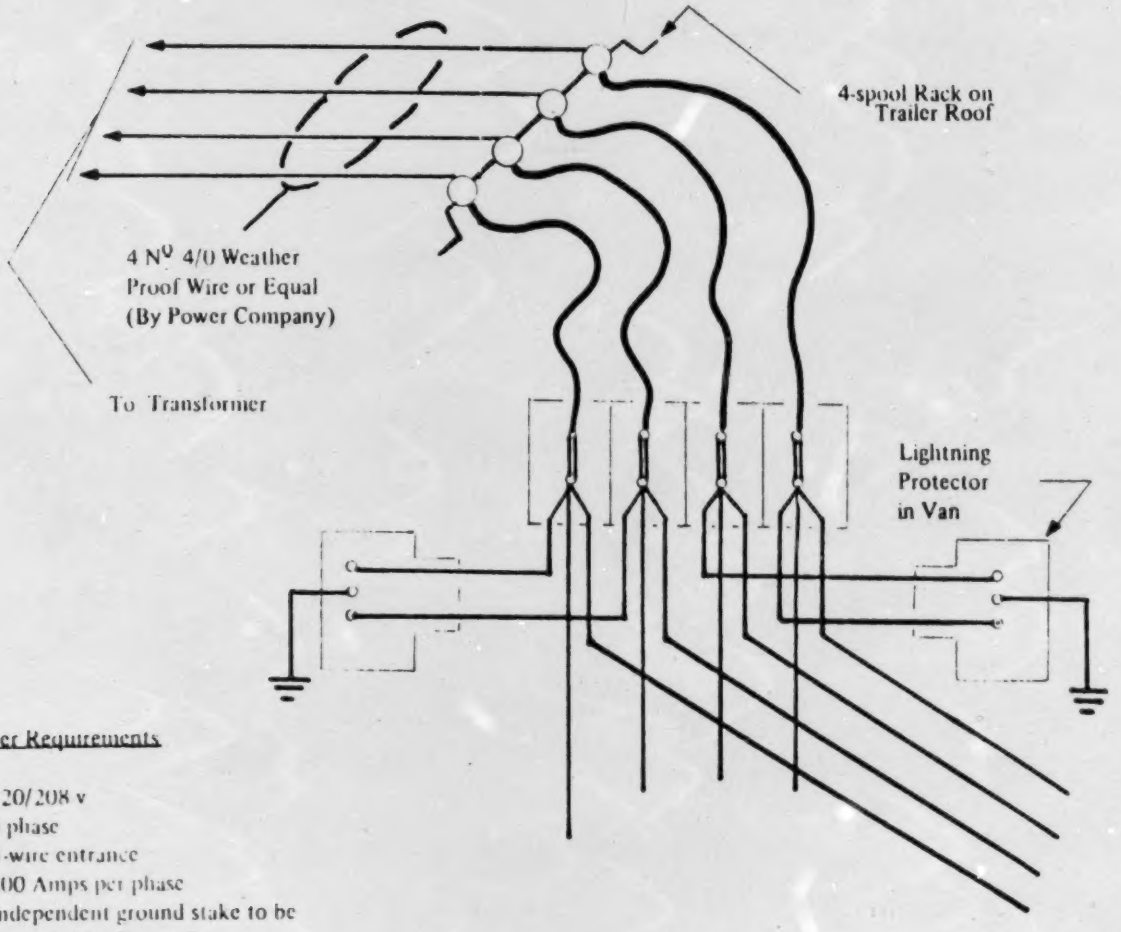
Estimated Local Costs for
Mobile CARE

	7 Week Site Operational Hours Per Week			Additional Weekly Costs Operational Hours Per Week		
	55	65	80	55	65	80
Local Expense Items						
Electrical Installation	$ 600	$ 600	$ 600			
Electrical Service	700	700	700	$ 100	$ 100	$ 100
Computer Operator at $3.50/hr beyond 40 hrs./week	416	704	1120	52	88	140
Proctors at $2.50/hr.	1100	1300	1600	138	162	200
	$2816	$3304	$4020	$ 290	$ 350	440
Fixed Cost Service Agreement with Penn State	$4500	$4500	$4500	$ 600	$ 600	$ 600
Sub Total Local Cost	$7316	$7804	$8520	$ 890	$ 950	$1040
For Institutions Granting Semester Credits:						
Number of Teachers Receiving one 3-credit Course	150	180	220	20	25	30
Revenue Received from Student Registration at $10/credit	$4500	$5400	$6600	$ 600	$ 750	$ 900
Total Estimated Local Cost	$2816	$2404	$1920	$ 290	$ 200	$ 140
For Institutions Granting Quarter Credits:						
Number of Teachers Receiving one 4-credit course	150	180	220	20	25	30
Revenue Received from Student Registration at $7.50/credit	$4500	$5400	$6600	$ 600	$ 750	$ 900
Total Estimated Local Cost	$2816	$2404	$1920	$ 290	$ 200	$ 140

Cost estimates applicable through May 31, 1976

Electrical and Telephone Specifications

for the Penn State CAI Laboratory

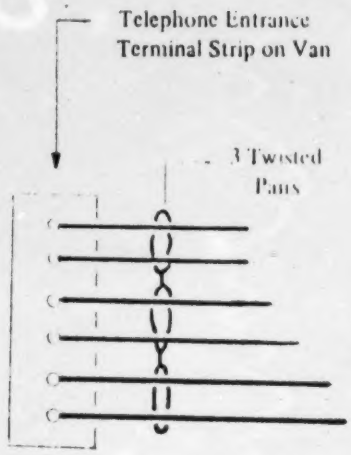


Power Requirements

120/208 v
3 phase
4-wire entrance
200 Amps per phase
Independent ground stake to be
provided by Power Company

Telephone Requirements

Standard instrument with
confidencer and long cord
on receiver



The Pennsylvania State University
Computer Assisted Instruction Laboratory

Responsibilities and Characteristics of the Proctors
for the Mobile CAI Laboratory

During the time that the Mobile CAI Laboratory is located within a school district, several persons will be required to serve as proctors. These should be local people who are available to work various schedules so that the Laboratory is adequately staffed during its operating hours, one on duty at all times that the Laboratory is open for instruction.

The proctor serves a dual function by providing assistance to both the student and the Systems Manager. Specific responsibilities could be classified within three major categories:

1. Assist students with problems they encounter either with the hardware or with the course itself.
2. Monitor scheduling, i.e., encourage students to maintain regular progress.
3. Perform a minimum of housekeeping chores with the Laboratory.

Suggested Proctor Characteristics

1. Available for approximately thirty hours per week within the following time limits:

10:00 a.m. -	10:00 p.m.	- Monday thru Friday
9:00 a.m. -	7:00 p.m.	- Saturday
1:00 p.m. -	11:00 p.m.	- Sunday

2. Available for twenty hours of pre-instruction orientation.
3. Between the ages of 17 and 60.
4. Have a high school diploma.
5. Not an authority figure for local teachers. (e.g., administrators, board members, or their wives or secretaries).
6. Personable.
7. At least 5'2" tall.
8. Recommended wage is equivalent to teacher's aides.

The final selection of proctors will be made by the Mobile Systems Manager after interviewing the applicants.

The Pennsylvania State University
Computer Assisted Instruction Laboratory

Responsibilities and Characteristics of the Computer Operator for the Mobile CAI Laboratory

Responsibilities

1. Computer operation during the Systems Manager's absence.
   a. Bring the computer up and prepare it for instruction.
   b. Diagnose minor student-station problems and take action (e.g. burned out bulbs, wrong reel for student's audio unit).
   c. Restart the system if an interruption occurs.
   d. Execute a job stream of utility programs at the end of instruction.
   e. Report hardware problems to IBM and the Systems Manager.
   f. Maintain detailed log of all computer abnormalities.
   g. Power down the system at the end of the day.
   h. Maintain a neat and efficient computer installation.
   i. File computer generated reports at the end of the day.
2. Supervise the proctors during the System Manager's absence.
3. Monitor the scheduling system.
   a. Make sure that the appropriate number of students are scheduled for a time period.
   b. Greet students and prepare their stations for instruction.
   c. Contact students to advise them of necessary change in their scheduled appointments.
   d. Identify students who need special assistance in maintaining adequate course progress.
4. Computer taught course.
   a. Record abnormal course activity in the Course Trouble Log.
   b. Record student comments related to course content.
   c. Refer difficult student questions to the Systems Manager or to the course author.
   d. Fill out Course Interrupt Report if a student does not follow normal course flow.
5. Work a 40 to 50 hour week with shifts arranged in conjunction with the Systems Manager.
6. Be available for the entire duration of the instructional site.
7. Occasionally conduct tours and give demonstrations.
8. Represent The Pennsylvania State University during working hours.

Suggested Characteristics

1. Between the ages of 20 and 50 with a high school diploma.
2. Responsible, with a pleasant personality and neat appearance.
3. Skilled in interpersonal relations.
4. Able to work hours described under 5 and 6 above.
5. At least 5'3" tall.
6. Good health, normal hearing, and able to lift 60 pounds weights occasionally.
7. Able to participate in intensive training in the Mobile CAI Laboratory for approximately 3 days prior to the commencement of instruction.
8. Capable of inspiring respect from the proctors and students.

The final selection of the Computer Operator will be made by the Mobile Systems Manager after interviewing the applicants.

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Computer Assisted Renewal Education

QUESTIONS FREQUENTLY ASKED BY TEACHERS.

What hours is the van open for student use?

How many credits is each course worth?

Is there any required prerequisite coursework?
No.

Are there any supplemental instructional activities? (term papers, projects, etc.)
No. There are no term papers or projects, only a handbook which supplements the contents of each course.

How is student progress and performance evaluated?
Through openbook tests administered by the computer to the student at various points throughout the course.

What is the attitude of students who have taken one of the courses?
Attitude questionnaires given at the conclusion of courses indicate an overwhelming majority of students enjoyed the courses and developed valuable skills as a result of taking the courses.

How long does it take to complete a course?
CARE 1, 2 and 3 take approximately 30 hours. CARE 4 takes approximately 10 hours.

Who gives graduate credit for the courses?

Is typing skill necessary?
No.

Can the courses be taken on a pass/fail basis?

Must you have previous work with computers and terminals?
No. None whatsoever.

Describe the stations – their components and number.
The van contains 16 student stations, each consisting of a small television screen, a unit for audio messages, and a 16mm image projector.

What are some of the advantages offered by the mobile van strategy?

1. It is mobile – going to the teacher's home area.
2. It offers flexible scheduling – permitting the student to personally schedule the times for his instruction, times which can change from week to week as the student wishes.
3. It offers individualized instruction – permitting the student to proceed at his own pace through a dynamic multimedia instructional environment.

QUESTIONS FREQUENTLY ASKED BY ADMINISTRATORS.

How long does the van stay at a site?
From 6–8 weeks, 8 weeks being the most common duration.

How many students can the van accommodate during an 8 week visit?
Up to 280 students.

Toward what audiences are the courses addressed?
Toward teachers, particularly in elementary schools, and toward administrators, paraprofessional aides, and other school personnel.

Is the computer with the van?
Yes.

What are the physical dimensions of the van?
Its interior dimensions are approximately 18 feet in width and 25 feet in length.

How is it moved from site to site?
It is transported by a tractor (semi-truck variety).

What is the schedule in terms of dates and duration for the local program?

What role does the sponsoring agency play? What are its goals and expectations?

How will the child profit by his teacher's taking one or more courses?
The teacher will acquire skills which will enable him to identify characteristics in a child's behavior which indicate potential learning difficulties. The teacher can then plan appropriate instructional strategies which will enable the child to cope with and often overcome these difficulties. Such planning strategies are constructed in a logical and analytic fashion, the teacher being able to go because of diagnostic and prescriptive teaching skills also developed through CARE courses.